

FAIRMOUNT SCHOOL OF ART AND ECOLOGY

The Fairmount School of Art and Ecology provides a holistic and immersive educational experience for each student through artfully scientific design. The architecture communicates basic concepts of elementary education through integrated, explorative, and enjoyable learning environments to personally and academically benefit each student. The design embraces the idea of the learning environment as the “third teacher” in which the architecture contributes to the student-teacher relationship and plays a role in the learning process. The school has many design features to enhance the quality of both indoor and outdoor spaces while minimizing its negative impact on the natural environment. All these features provide learning opportunities for the students to learn and discover.



MAIN ENTRANCE **M2 M3**

The main entrance of the Fairmount School of Art and Ecology welcomes students with its angular form and bright colored interior framed by site vegetation. This image is accentuated by the undulating roofs which express playfulness throughout the design. Entering the school is a layered experience which provides organic privacy. The students pass a grove of eucalyptus trees before checking in at the reception desk and descending into a central courtyard.

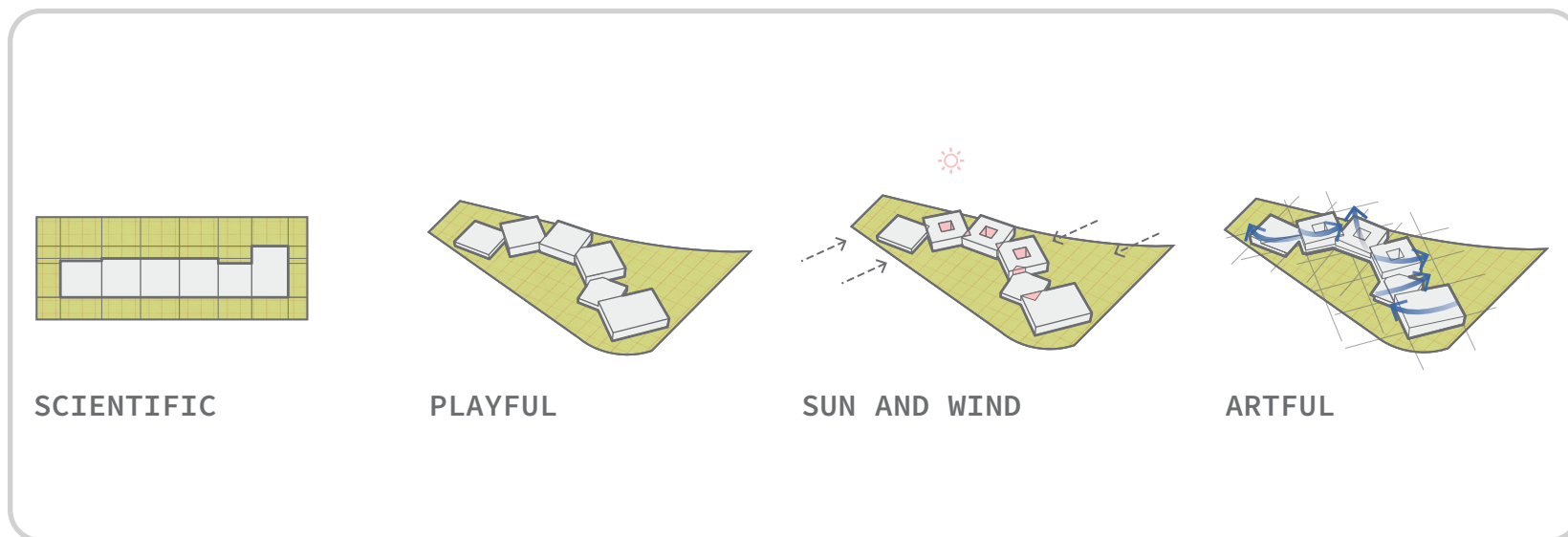


LEARNING COMMUNITY INTERSECTIONS **M9 M10**

Intermediate spaces between learning communities reinforce the third teacher concept by overlapping two square forms to create a third shape. Skylights, colorful patterns, and variations in flooring highlight these intersections as integral learning experiences for the students. Daylight and views of natural vegetation are incorporated throughout the learning spaces to encourage ecology, health, and wellness.

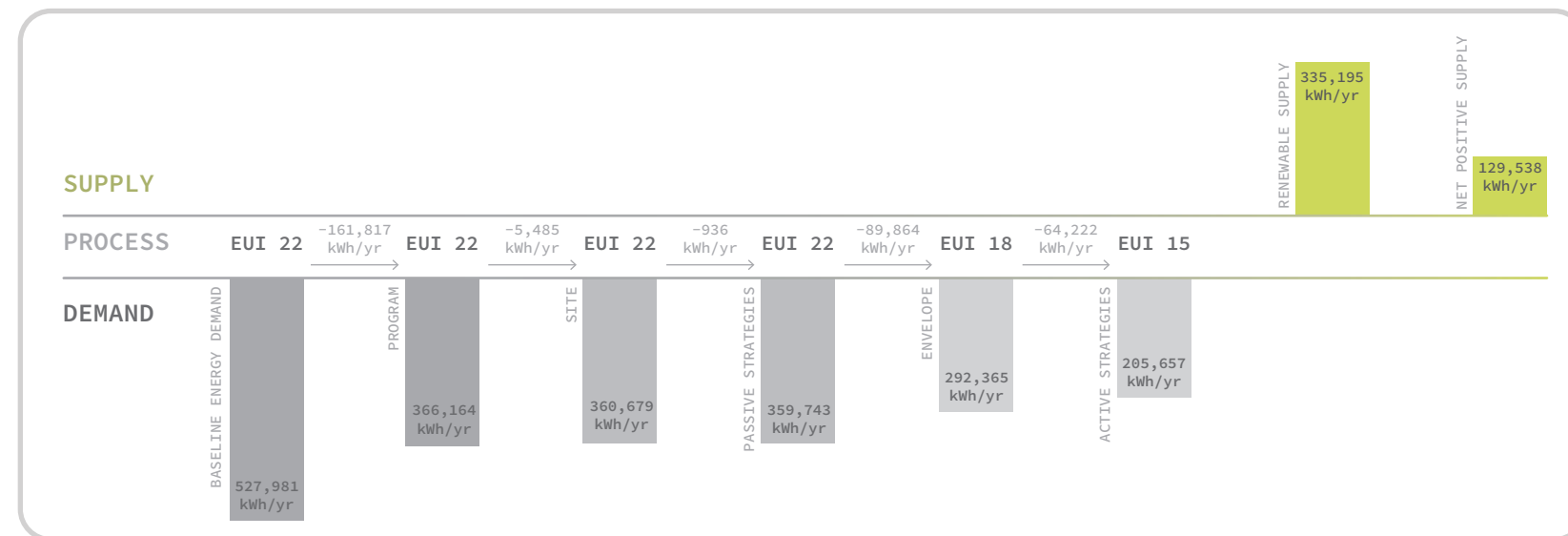
MASSING DEVELOPMENT **M1**

The massing of the Fairmount School of Art and Ecology is derived from four steps: a scientific grid, a playful articulation of that grid, response of the sun and wind, and, lastly, and artfully composed angled roofs. This massing gives attention to site considerations while embodying the quality of an ecological and artful school.



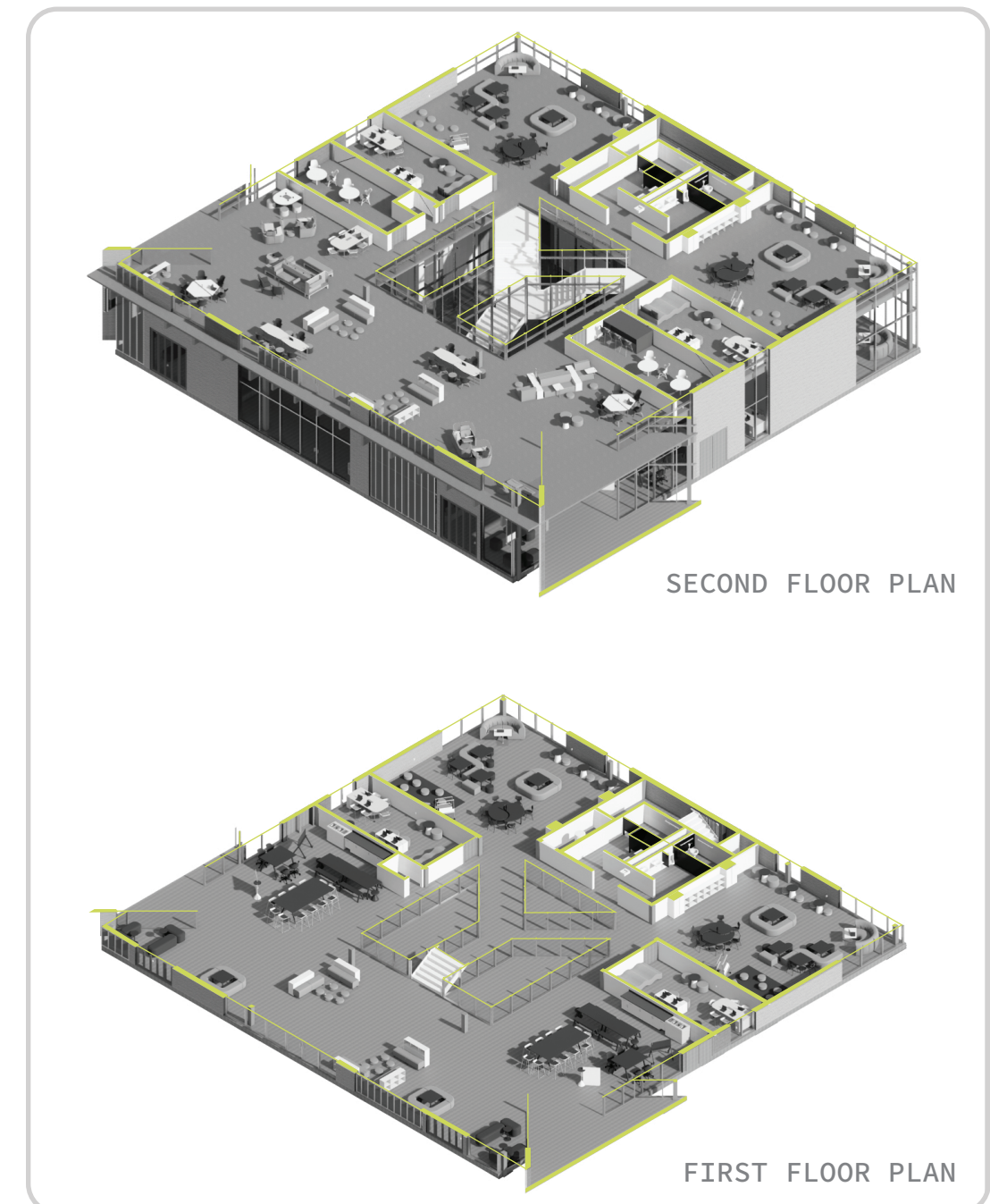
DESIGN FOR ENERGY THROUGH THE DESIGN PROCESS **M6**

Energy conservation played a salient role in the design process through a series of considerations to reduce energy demand. This process included an optimization of program and site orientation, the integration of passive strategies, and performance improvement of the envelope and building systems.



DESIGN FOR CHANGE **M9**

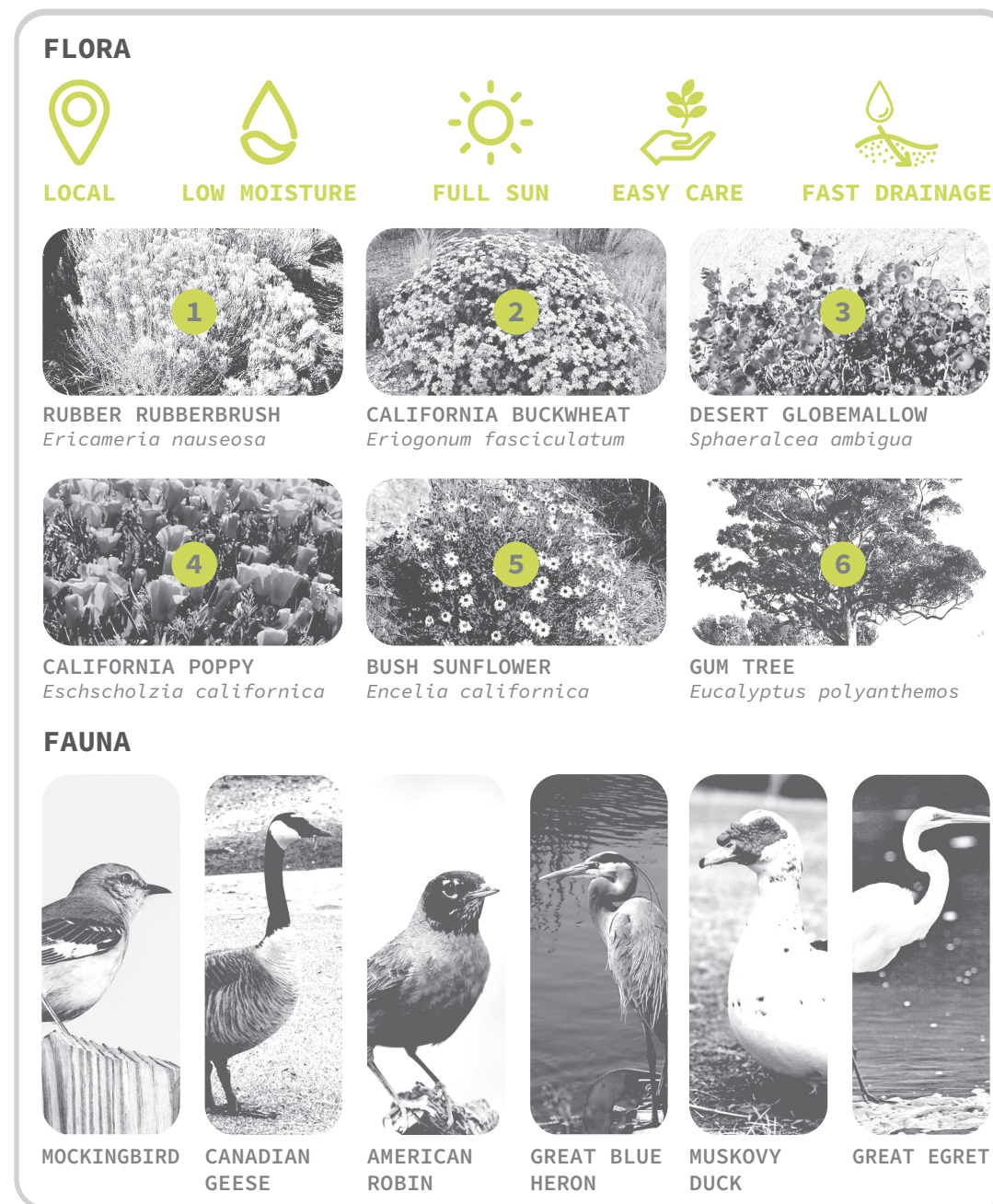
Differing from the factory-based classroom model, the modularity and adaptable furniture in the learning communities offer flexibility to accommodate greater amounts of students and welcome future population changes.



SITE PLAN **M1 M2 M3**
The Fairmount School is located in Riverside, CA and serves as a mediator between Fairmount Park and Downtown Riverside. This placement welcomes an equitable, inclusive community to the school's healthy environment while maintaining the privacy upon the site through intentional landscaping. The sun and wind patterns complement its orientation strengthening the passive strategies which lend to its net positive status. The native flora vegetates the site and the extensive green roofs, scarcely disturbing the original site while improving air filtration, irrigation, and natural preservation.

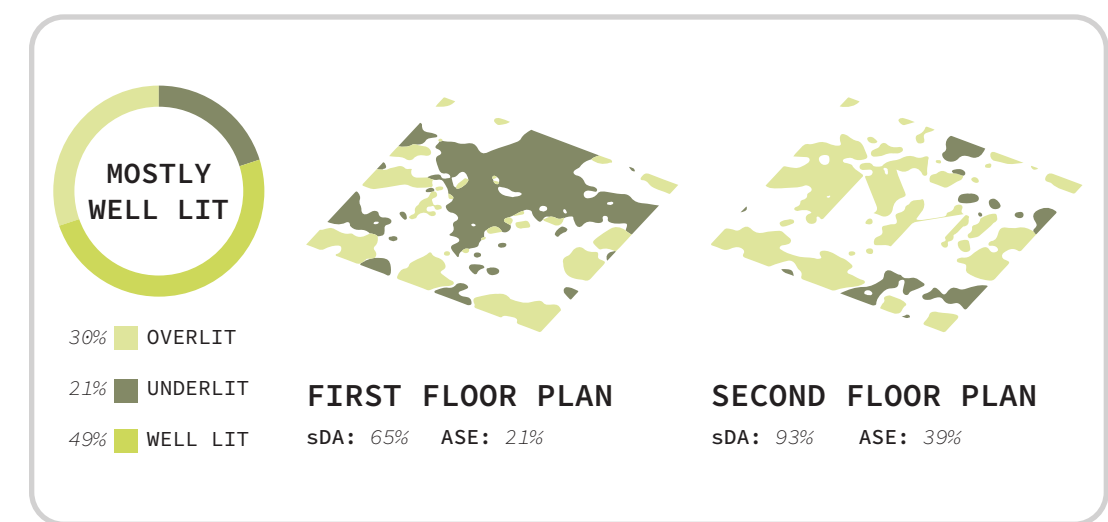
DESIGN FOR ECOSYSTEMS **M3**

The site adopts local flora which reduces water usage due to the plants' natural adaptation to the land. The native fauna inhabits these specific plants. This feature allows the site to become an extension of the park.



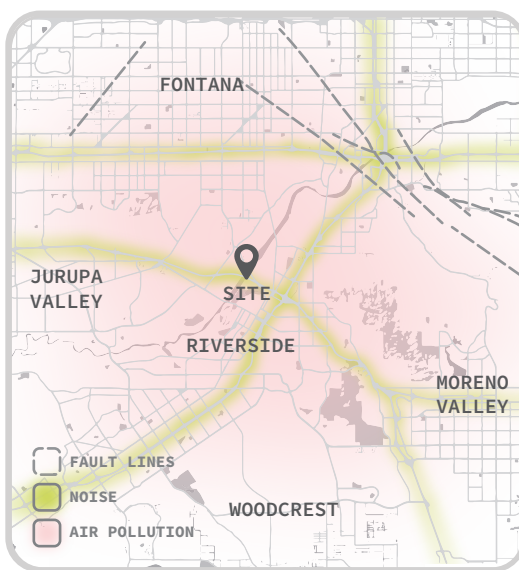
DAYLIGHTING ANALYSIS **M7**

For the daylighting, the learning communities are mostly well-lit. The daylight permeates each space through the central atrium and exterior glazing. This provides adequate daylighting to ensure the wellness of the students.



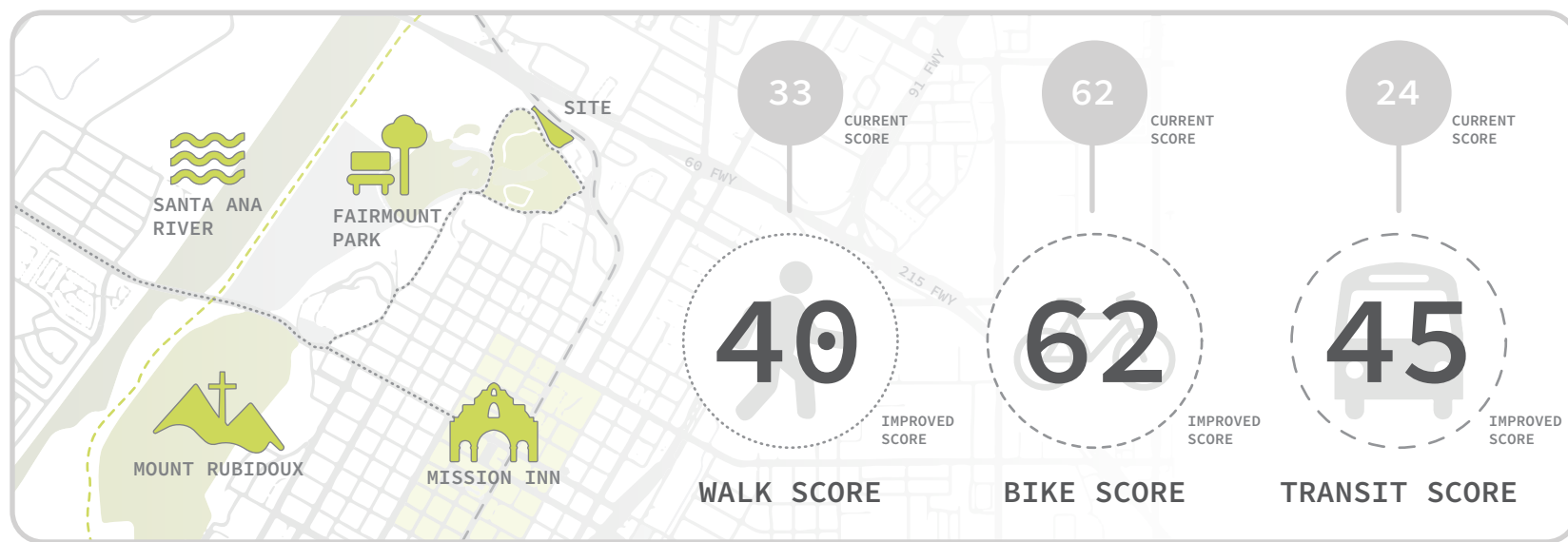
SITE HAZARDS **M1**

The site experiences air pollution, noise from freeways, and fault lines below the San Bernardino mountains.



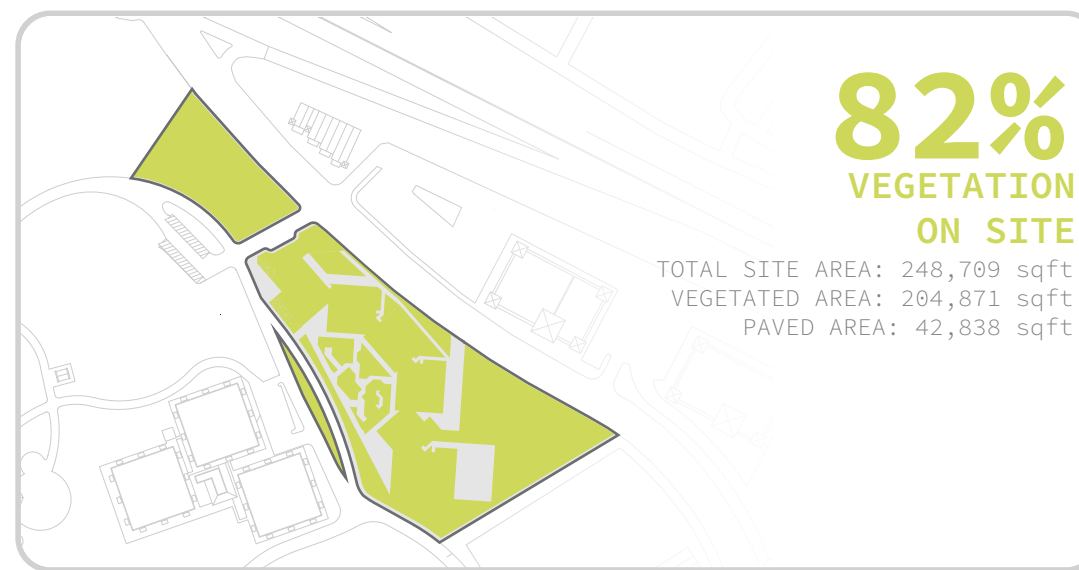
DESIGN FOR EQUITABLE COMMUNITY **M2**

The school lies near the heart of Riverside, California in Downtown Riverside, a significant piece of the Inland Empire's urban fabric. The strategic location of the school improves the equity of access for Riverside's community as an avenue to these crucial, public amenities, encouraging development of transportation infrastructure for walking, transit, and biking.



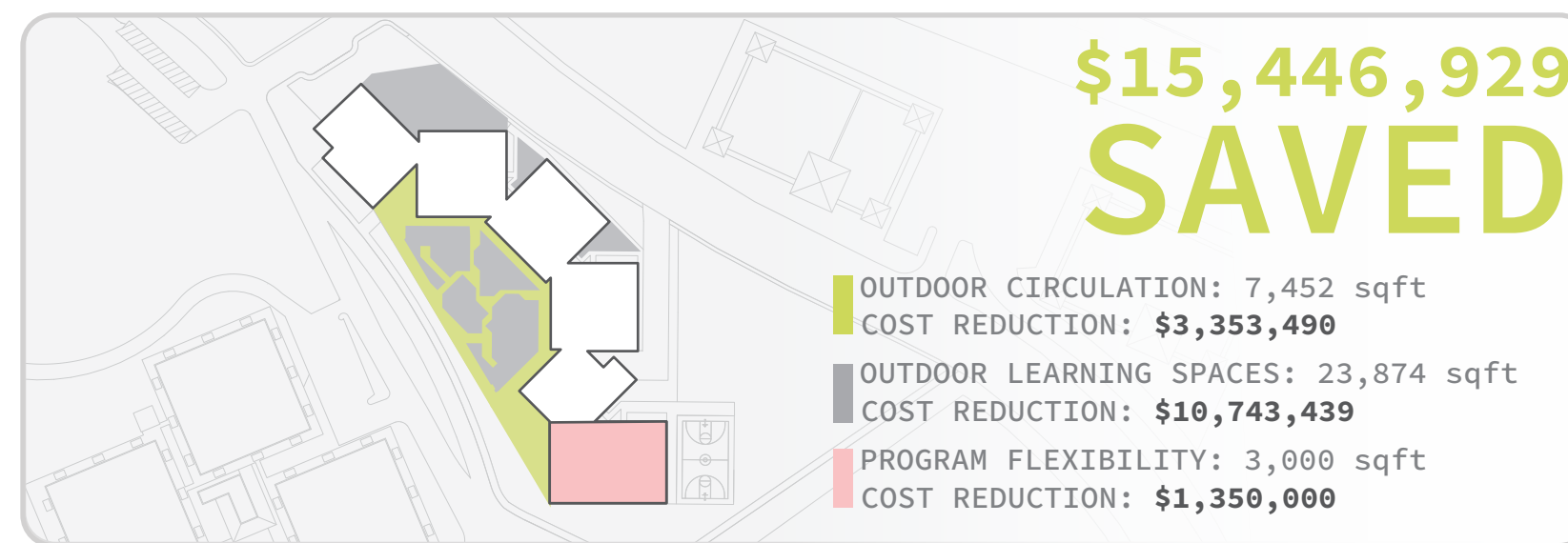
VEGETATION ON SITE **M3**

The school buffers the boundary of undeveloped and highly developed land both visually and acoustically. Its intermediary position also protects the local habitats in the park and expands the native plant species onto the site.



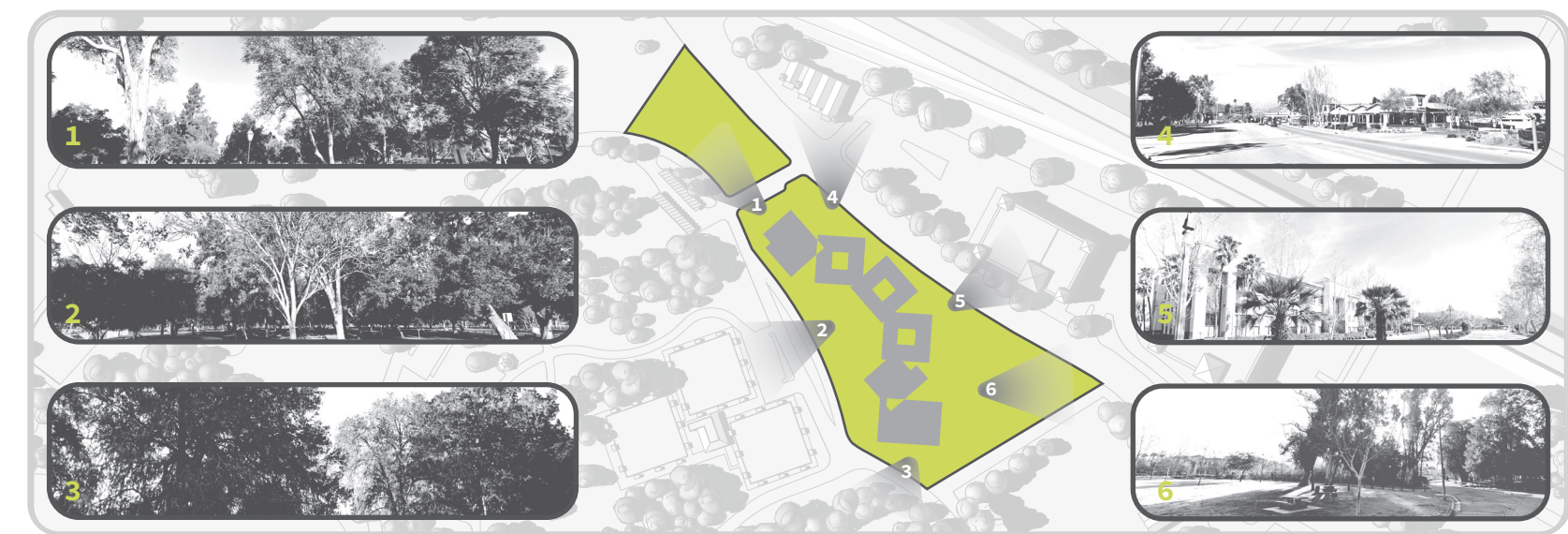
DESIGN FOR ECONOMY **M5**

Due to the economical conditions of California, the average cost of a public elementary school is \$450/sqft. Three initial design decisions were made to limit project costs. These included the use of exterior circulation, outdoor learning spaces, and spaces with flexible programmatic use. The total savings of these decisions reach nearly 15 and a half million dollars.



DESIGN FOR WELL-BEING **M7**

The curtainwalls throughout the facades of the school offer expansive views of the park and surrounding site. This provides a sense of connection between the indoor and outdoor experiences which enhance students' overall well-being and cognitive abilities. This indoor and outdoor connectivity also helps the overall air quality as the natural flora purifies the air of the school environment.



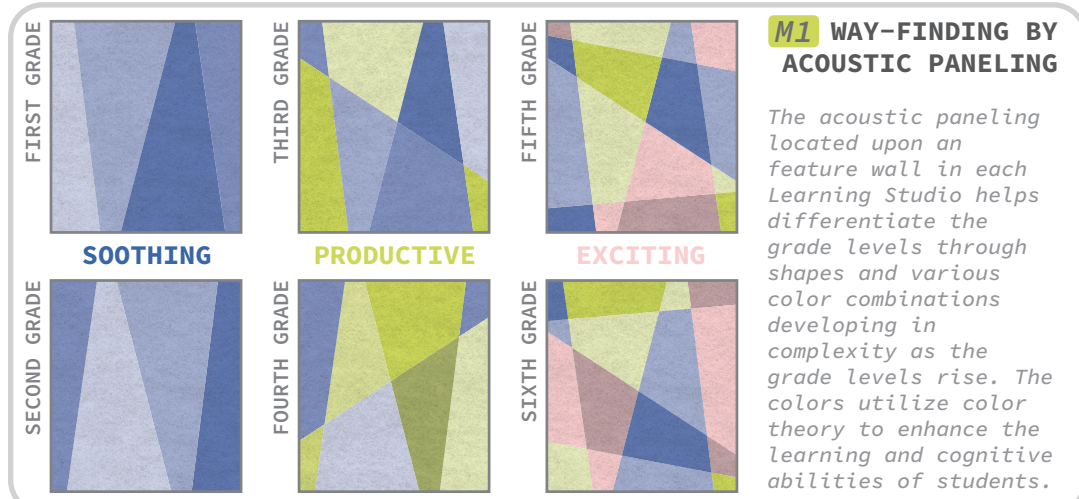
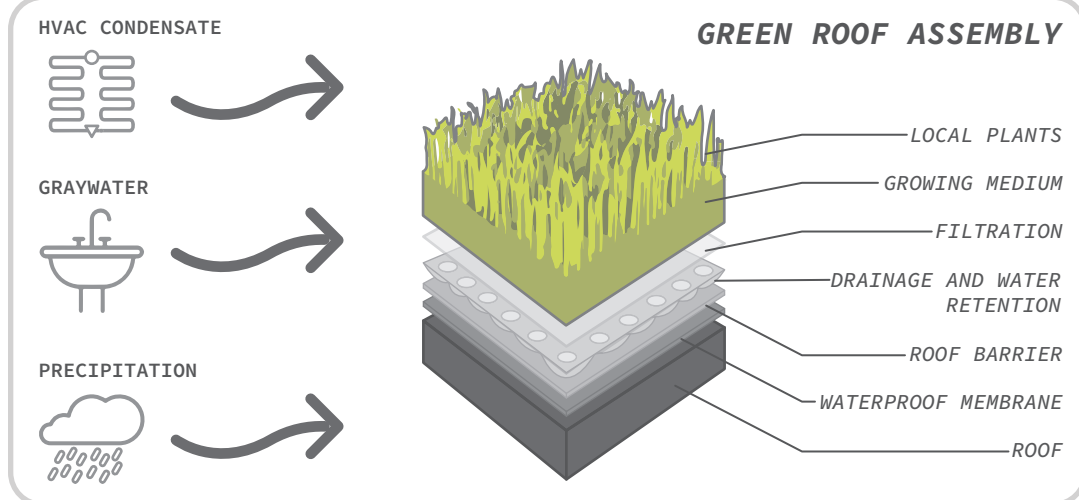


CENTRAL, COMMUNITY COURTYARD **M2 M3 M10**

The central, community courtyard offers many beneficial factors to the school aside from the grandeur vantage points of the mountains and Fairmount Park. It also provides views within the site for security, a crucial aspect to elementary schools. This courtyard invites pleasurable, shaded outdoor circulation and access to the extensive green roofs above the administration and dining commons. It also houses outdoor classrooms, organic playing spaces, and outdoor dining, encouraging community to flourish and engage. The playful, geometric landscaping adorned with native flora offers subconscious shape finding and ecological education.

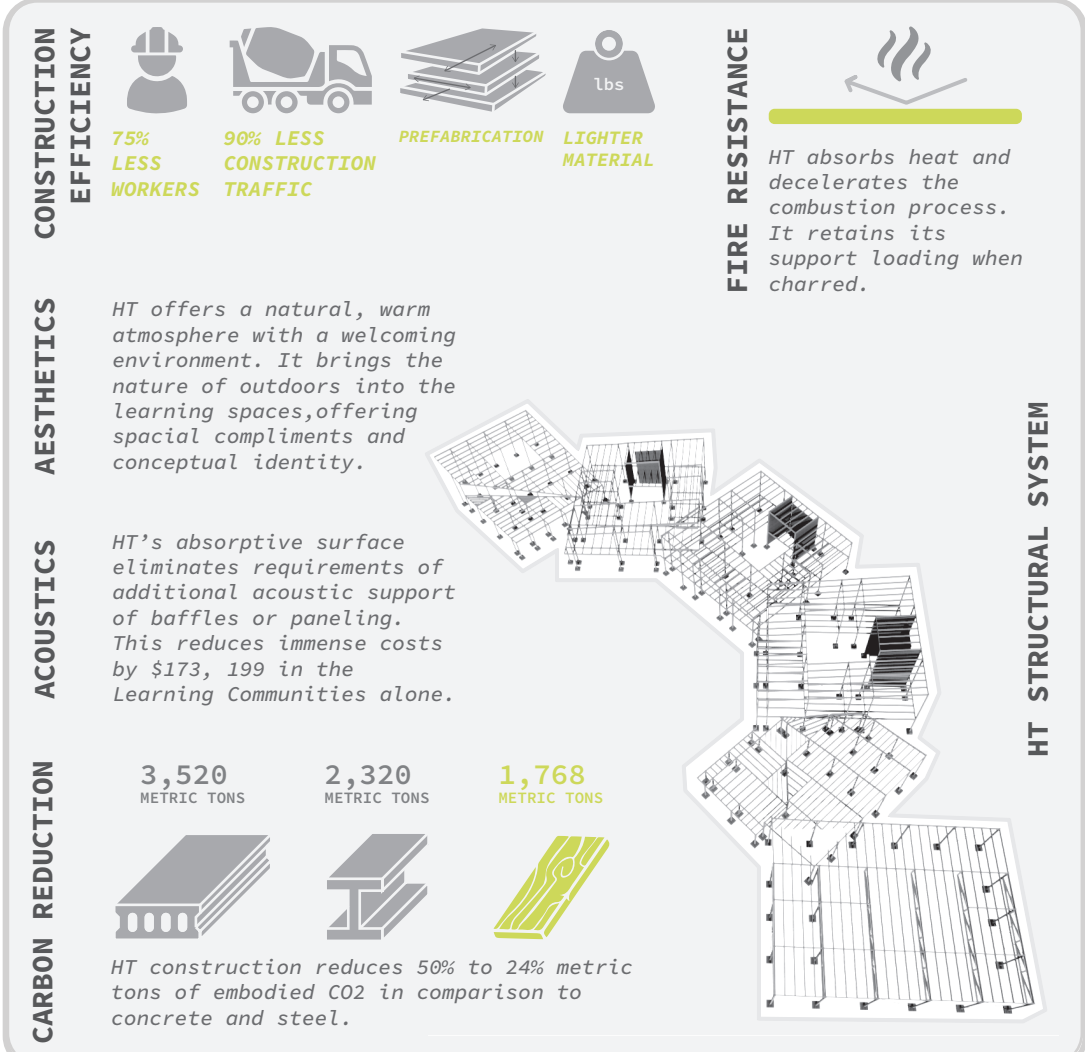
DESIGN FOR WATER **M4**

Aside from the green roof's performance to reduce heat gains, it proves as a key component to the 100% retention of water on site. It provides irrigation for the HVAC condensation, graywater, and precipitation, feeding the local fauna on site.



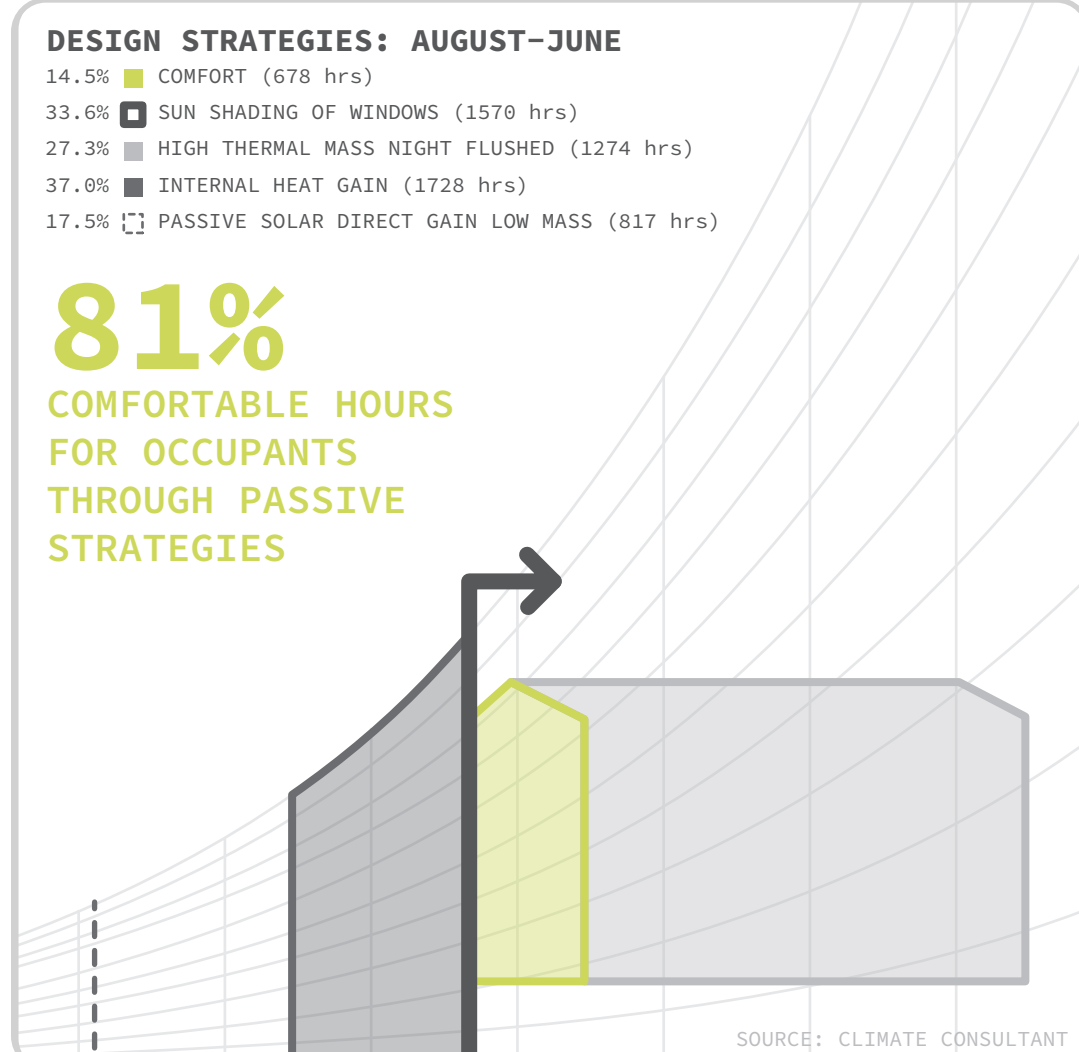
DESIGN FOR RESOURCES **M5 M7 M8**

The school's Heavy Timber construction (HT) offers numerous economical and ecological benefits with competitive statistics in comparison to concrete and steel construction. The most notable observation is the immense reduction in carbon emissions.



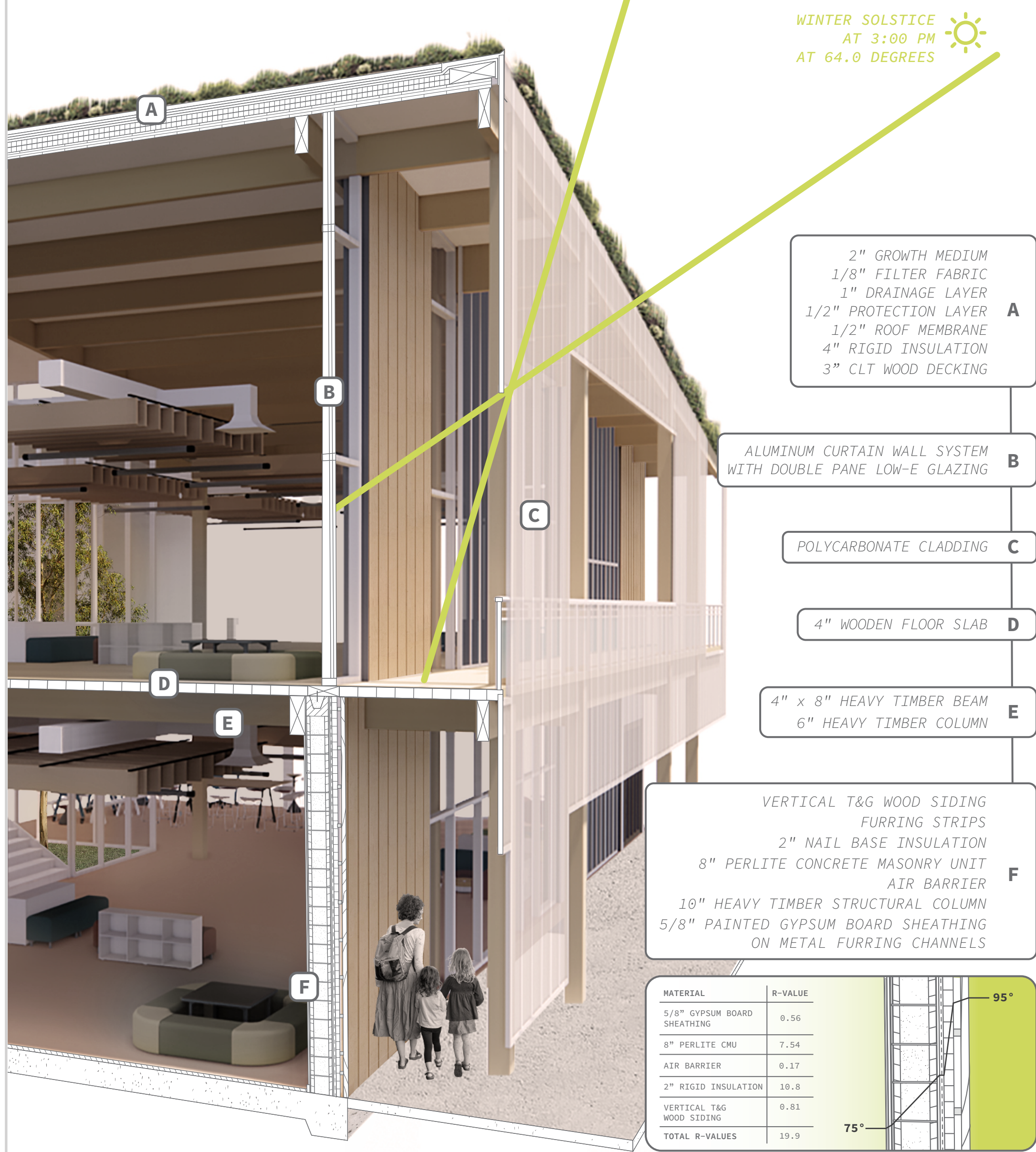
DESIGN FOR INTEGRATION **M1 M5**

The school utilizes natural, passive strategies to compliment the hot, desert climate of Riverside and provide an optimized comfort zone for 81% of occupied hours. This greatly reduces energy consumption and financial demands.



DETAILED WALL SECTION **M1**

The tectonics of the detailed wall section show the building's materiality and layers of transparency for the student's benefit of understanding. It also depicts the solar shading manipulated in accordance with the solar angles to welcome direct heat gain during the winter and deter the heat gains in the summer. The hygrothermal diagram of section F illustrates the role of the R-values of the individual materials in reducing the temperature by 20 degrees Fahrenheit.



BUILDING LAYERS EXPLODED AXON **M10**

This exploded axon dissects each component of the building from the exterior envelope to the detailed systems and heavy timber structure of the interior. Each element advocates and implements sustainability and the third teacher concept.

GREEN ROOF

The green roof offers significant sustainability factors in reducing heat gains, preserving the vegetation and landscaping of the site, and providing natural irrigation. In addition, it enhances student's understanding of ecological and floral properties.

HVAC

The HVAC, a packaged unit, is exposed by the heavy timber construction's fire hazard codes. Although required, the exposure also carries the third teacher concept by prompting the curiosity of students in air circulation.

ACOUSTIC Baffles

The acoustic baffles are composed of 100% recycled cotton and 85% recycled aluminum with PVC-free wood-like finishes. Their micro-perforations and acoustical infill assure quality sound absorption for the academic environment.

LIGHTING SYSTEM

The lighting is organized in zones for selective lighting, especially within the intermediate spaces at a distance from natural daylighting. Aside from typical light switches, the lighting system also includes sensors which dim or shut off lighting if the spaces are inactive or unoccupied.

PLUMBING SYSTEM

The plumbing system employs a water efficient system that decreases water consumption. The choice plumbing fixtures reduce the usage of water by 20% in comparison to the national average.

HT STURCTURE

In addition to benefits previously mentioned, the HT construction offers a learning opportunity for the students, seeing structural connections in a manner that is clear and pleasing to the eye.

PARTITIONS

The interior partitions utilize No-VOC finishes to ensure the air quality of the learning spaces.

ENVELOPE

The envelope of the Learning community provides attention to climate, wellness of students with organic vantage points, and an indoor-outdoor connection. The flooring provides thermal mass for direct gain in the winter.

SECTION CUT **M1 M5 M7**

The most impactful passive strategy on the building's comfort zone is high thermal mass night flushing, most notable in the warmer seasons. Fresh air enters through the low-placed operable windows along the perimeter which fill the spaces with cool air while the hot air naturally rises and flows out the high-placed operable windows of the central atrium. Meanwhile, the position and quantity of the glass facade ensures direct gain during the winter. These natural design strategies diminish cooling and heating expenses. Furthermore, the section cut also depicts the dense vegetation of the school which improves the wellness of the students as they navigate the verdant environment.

