



DOUGLAS ELEMENTARY SCHOOL

FLOWING WELLS UNIFIED SCHOOL DISTRICT | TUCSON, ARIZONA

2021 LE SOLUTIONS AWARDS
ADDITION & RENOVATIONS



1

EXECUTIVE SUMMARY

The original Walter Douglas Elementary, with its iconic thin-shelled concrete roofs, was built in 1961 and had surpassed its useful life. A bond was passed by the Flowing Wells community to build a replacement elementary that would better support the under-served population, promote 21st century learning, and counteract the effects of private charter schools moving into the area. In honor of the school's famous aviator namesake, the District decided to implement a unique flight-based curriculum. The new Douglas Elementary School establishes an exciting architectural expression that creatively preserves and utilizes some of the school's original structures. The new school integrates local aviation artifacts to embrace the history of the community and incorporates a fresh branding and graphics strategy to embody the new teaching approach as well.

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SCOPE AND BUDGET



DOUGLAS ELEMENTARY SCHOOL

OWNER
Flowing Wells Unified
School District

GRADE LEVELS
PreK-5 | 660 Student
Population

CONSTRUCTION COST
\$12.6 Million

LOCATION
Tucson, Arizona

SIZE
41,500 SF BLDG - New
12,000 SF BLDG - Renovated
6.7 ACRE SITE

DELIVERY
CM@Risk

FACILITY TYPE
Addition and Renovation

POST OCCUPANCY
EVALUATION PENDING



This addition and renovation project includes 41,500 SF of new construction and 12,000 SF of renovations. The construction cost was \$12,600,000 and the spaces include a new, two-story classroom building, kitchen addition, MPR renovation, and the conversion of two 1960's thin-shell concrete buildings into student services and ramada spaces. Originally intended to be an entirely new replacement school, the budget required the team to adaptively reuse portions of the existing campus to save costs. The final concept preserves some of the existing and original buildings while providing brand new classrooms for every student attending school at Douglas!

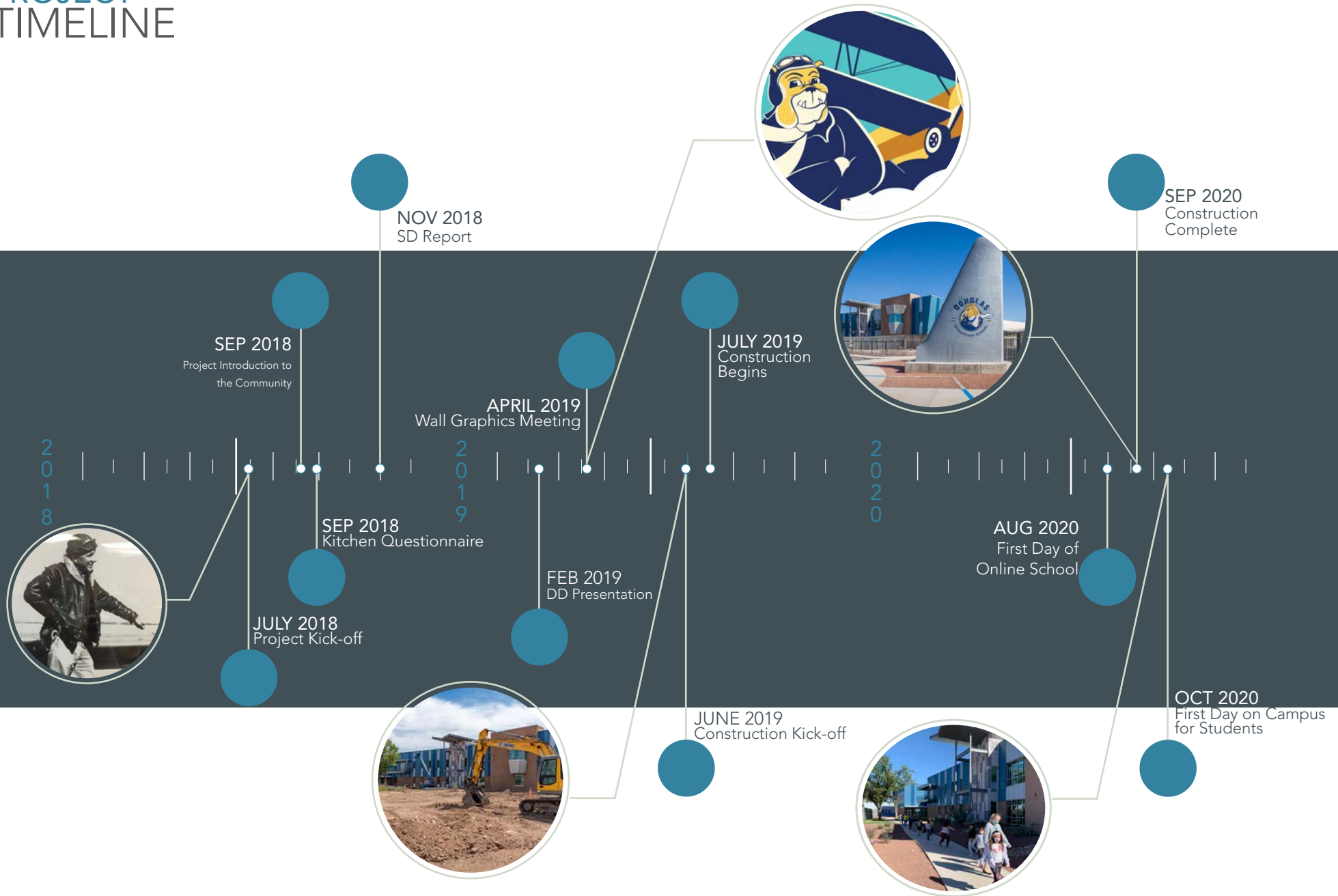


3 SCHOOL AND COMMUNITY ENGAGEMENT

COMMUNITY

This school is located in the area of the city with the highest rates of CPS child removals, domestic violence, and teenage pregnancies. Almost two-thirds of all homes in the area are rentals and one-third are mobile homes. One in five residents has moved in the last year. 88% of the students who attend school here are eligible for the free or reduced lunch program, which means family incomes at the school fall well below the poverty level. Most of the students that go to school here have never had anything designed for them and most have never been on an airplane before. This school was designed for the children of this community in hopes that it will empower them, give them a sense of what is possible, and help them soar to a bright future!

PROJECT TIMELINE



A small, but passionate, Planning and Design Committee was established to lead the project. Consisting of the Superintendent, Principal, Long-term Teachers, New Teachers, and Facilities Staff, the committee always made decisions based upon what was best for the students. Community outreach meetings were held to engage the public at the right times during the process and the School Board was kept apprised of progress.

The existing thin-shell concrete buildings were admired by historic preservationists and past generations of Douglas Elementary students. However, to the school district, the round buildings had long passed their useable lives, were poorly configured, inefficient energy users, and posed severe maintenance problems.

At only 6.7 acres, the project site is extremely small for a 660-student school. In Arizona, a school of this size would usually occupy at least 10 acres. Additionally, unforeseen conditions were abundant, with utilities strewn unpredictably throughout the site.

Phasing was difficult. The existing school remained open and operational during construction. Conditions were cramped as two round classroom buildings were demolished to make room for the new two-story building. Renovations were completed only after the new building was finished and students could be moved in.

Traffic was unsafe and problematic. Pedestrians and bikes, parent pick-up and drop-off, buses, service vehicle, as well as visitor and staff parking were interspersed and spilling into the surrounding neighborhood.



Teachers at work in the materials-and-team-planning center of one of the three academic buildings at Douglas School. The center opens into all classrooms in the building.



The Story of an 'Unusual' School

By GEORGE N. SMITH, Superintendent
Flowing Wells School, Tucson

A close-up of one of the four buildings comprising the new Douglas School.



Arising Teacher November, 1963

A typical classroom at Douglas School. Notice how dividers of various kinds are used to reconfigure the room for small-group work.

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AEA SERVICES FOR YOU

YOUR MEMBERSHIP CARD is the magic key that opens the doors to many services — services provided by your NEA-AEA and your local. You, as a member, are entitled to all of them. Check just a few samples below — how many do you know, and use?

- | | |
|--|--|
| <input type="checkbox"/> NEA Journal — Aritana Teacher | <input type="checkbox"/> Convictive service on salary abrogation. |
| <input type="checkbox"/> AEA Newsletter — AEA Bulletin | <input type="checkbox"/> Research bulletin, salary student |
| <input type="checkbox"/> Teacher Liability Insurance | <input type="checkbox"/> Fact findings |
| <input type="checkbox"/> Major Medical Insurance | <input type="checkbox"/> Research findings for local associations and new curriculum |
| <input type="checkbox"/> Hospital and Surgical Insurance | <input type="checkbox"/> Field service for local union and local |
| <input type="checkbox"/> Health Insurance | <input type="checkbox"/> Local committee |
| <input type="checkbox"/> Term Life Insurance | <input type="checkbox"/> Filings, film strips, new recordings |
| <input type="checkbox"/> Low Cost Auto Insurance | <input type="checkbox"/> Speakers for local programs |
| <input type="checkbox"/> Right to a hearing by third members if unfairly dismissed | <input type="checkbox"/> State Conferences |
| <input type="checkbox"/> Convictive service on legal problems | <input type="checkbox"/> National and statewide conventions |

SCHOOL AND COMMUNITY ENGAGEMENT



ABOVE:
EARLY SITE OPTIONS DISCUSSED WITH
PLANNING COMMITTEE.

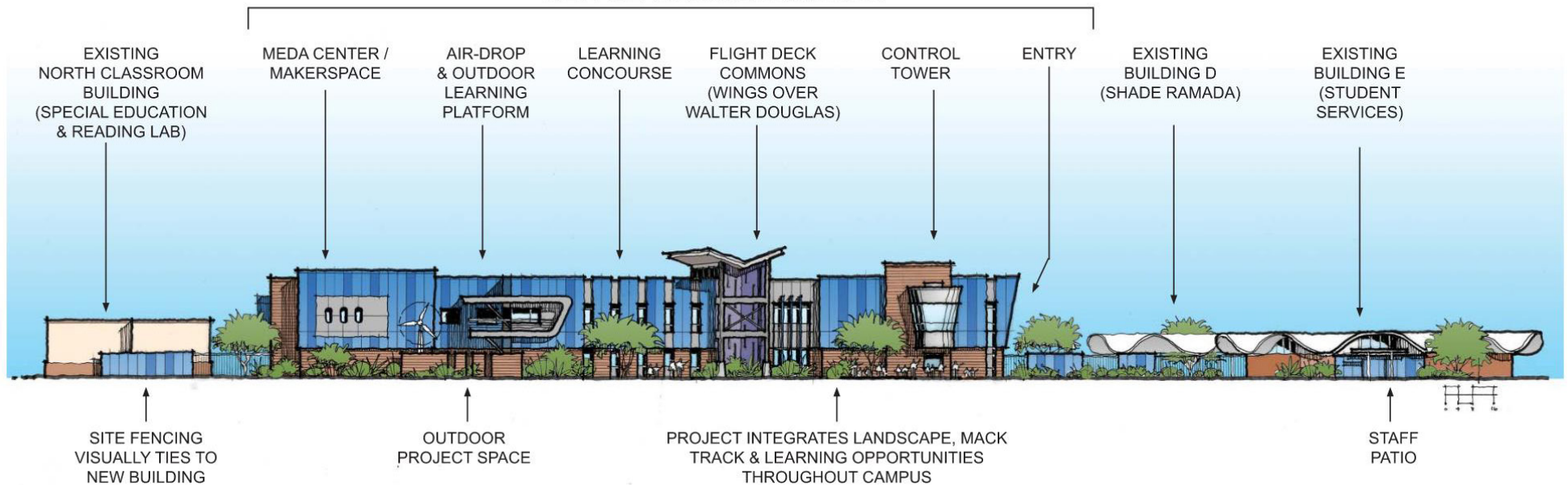
VALUE OF PROCESS AND PROJECT TO COMMUNITY AT LARGE

Parent involvement was minimal during the design process. Rampant poverty, language barriers, and other life struggles made participation in stakeholder meetings a low priority for most. A dedicated Planning and Design Committee, led by the district superintendent himself, made every decision with the best interests of the students in mind. The team responded to options throughout the process, carefully evaluating pros and cons, and generating creative ideas.

4 EDUCATIONAL ENVIRONMENT DESIGN



NEW CLASSROOM BUILDING



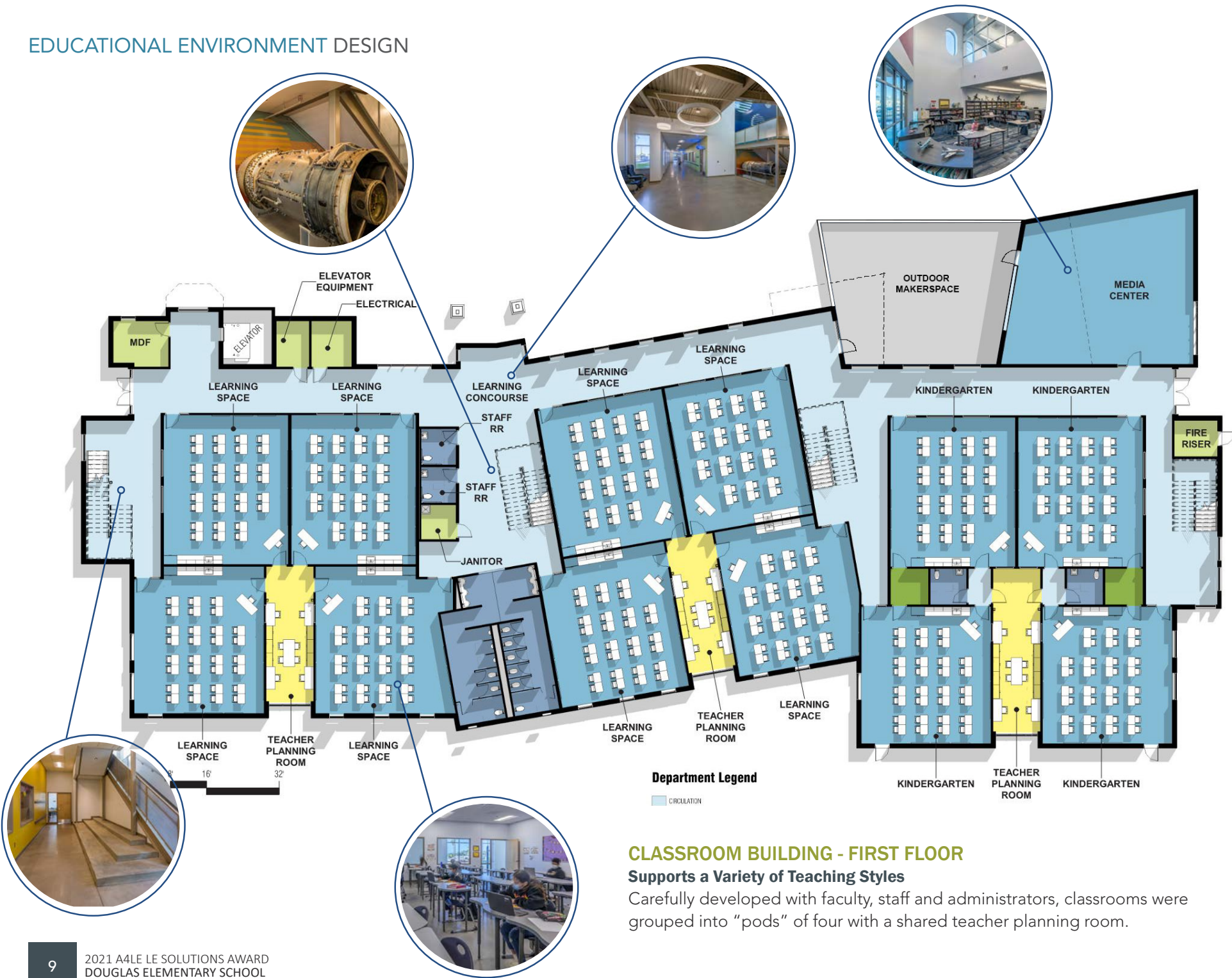
EDUCATIONAL VISION AND GOALS OF THE SCHOOL

This land-locked district is facing heated competition from private charter schools. Of course, as students are lured away from public schools, available funding is reduced. As a way of sparking excitement, recruiting and retaining students and staff, carving out a niche and responding specifically to the aviation history of the community, the District decided to establish a unique, flight-based curriculum for the school.

SUPPORTS THE CURRICULUM

A flight-based vocabulary is used throughout the project: in the architectural forms and details, the graphics, and through the preservation and display of aircraft artifacts from the community. Interior “zones” are reflected on the building exterior. Other fun, subject-based elements to support the curriculum include the “Flight of the Bumblebee Trail” interpretive nature path; the “Vapor Trails Runway” express route to the playground, and the “Launch Pad”, a place for outdoor, flight-related experiments or lessons. The design is intended to create a school image that excites students and potential students, to be a source of pride for the neighborhood and community, and to reinforce the District’s flight-based learning vision.

EDUCATIONAL ENVIRONMENT DESIGN



CLASSROOM BUILDING - FIRST FLOOR

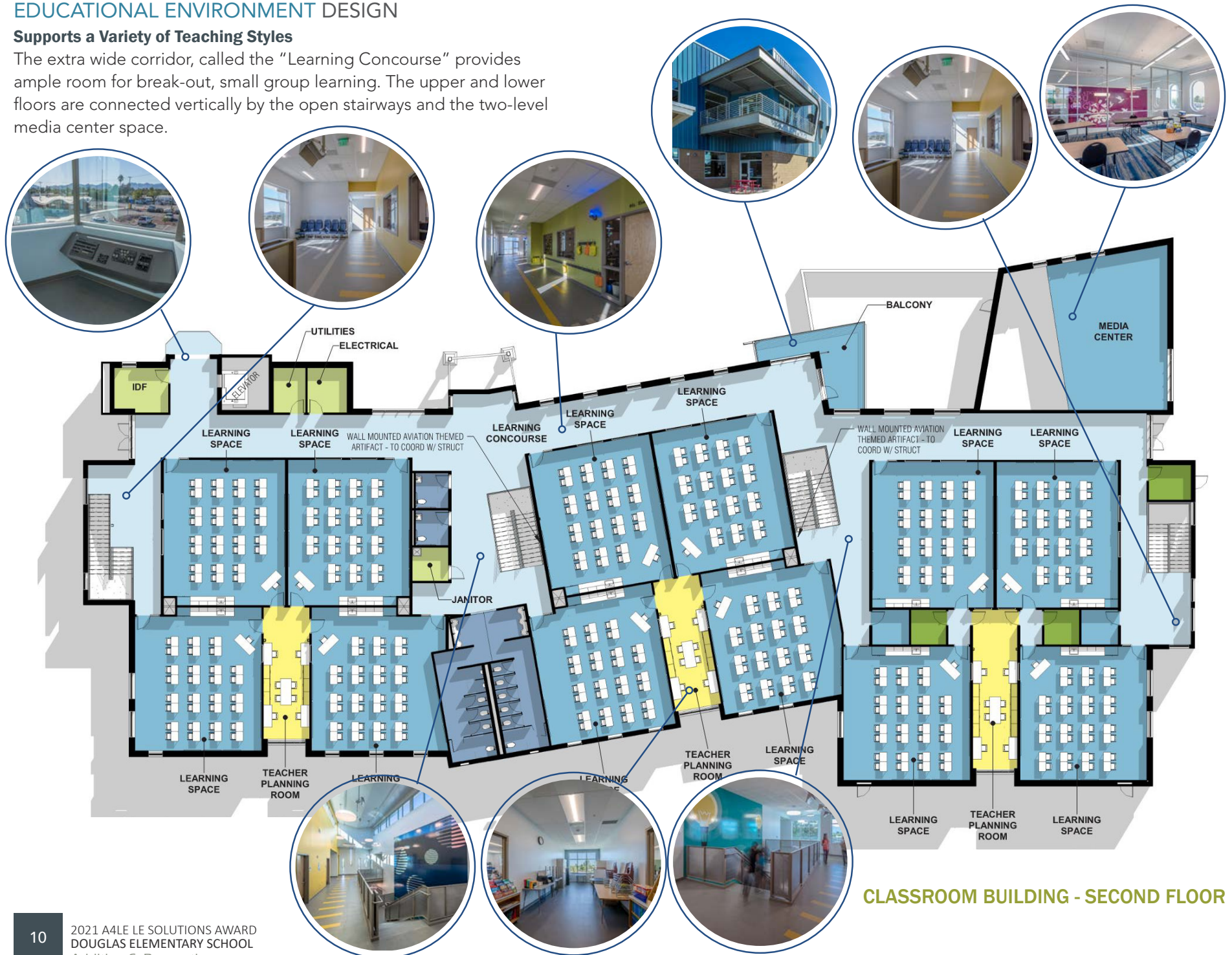
Supports a Variety of Teaching Styles

Carefully developed with faculty, staff and administrators, classrooms were grouped into "pods" of four with a shared teacher planning room.

EDUCATIONAL ENVIRONMENT DESIGN

Supports a Variety of Teaching Styles

The extra wide corridor, called the "Learning Concourse" provides ample room for break-out, small group learning. The upper and lower floors are connected vertically by the open stairways and the two-level media center space.



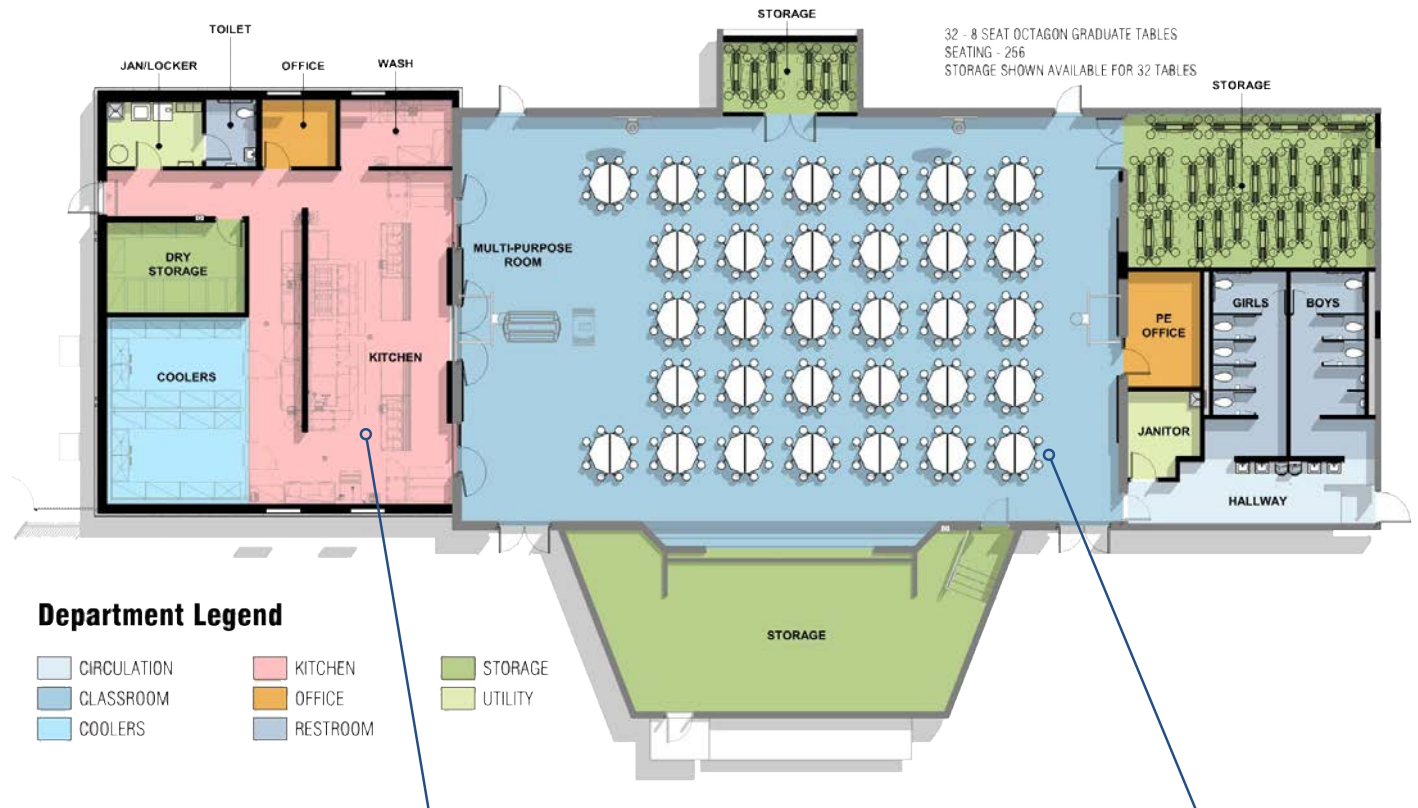
CLASSROOM BUILDING - SECOND FLOOR

EDUCATIONAL ENVIRONMENT DESIGN

ADAPTABLE AND FLEXIBLE

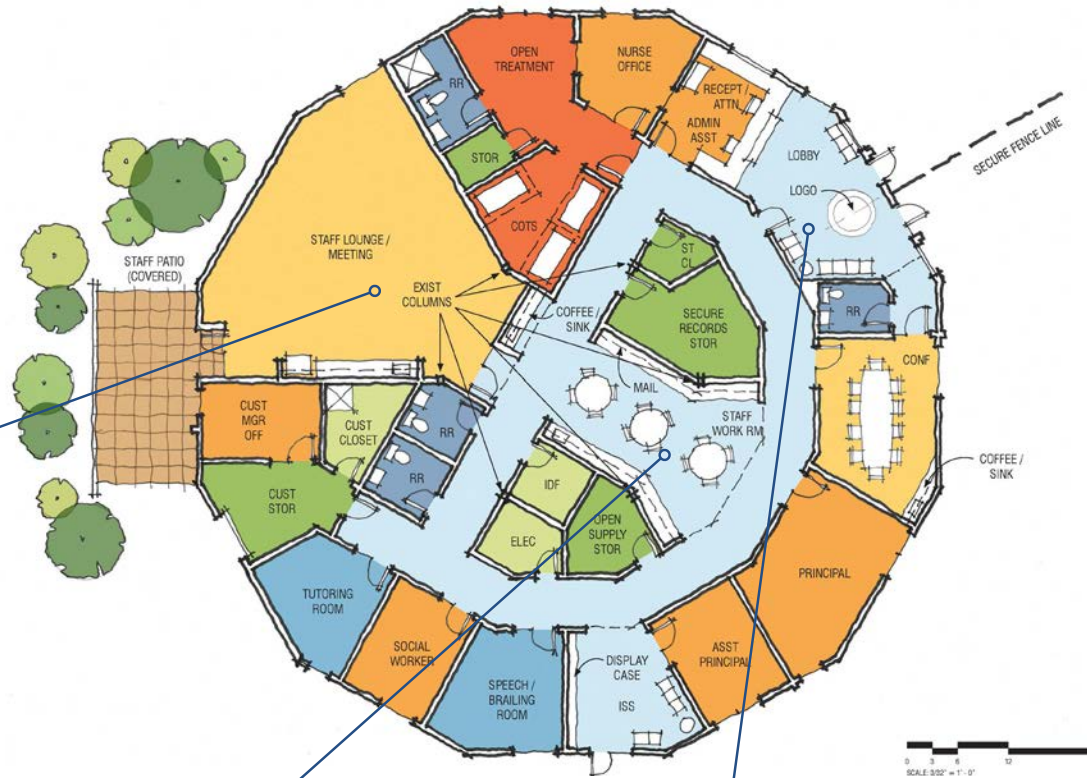
Easily configurable rectangular learning spaces replaced the previous inefficient, wedge-shaped classrooms. While the school district would have preferred to tear all existing structures down and construct an entirely new school, the budget would not accommodate it. So, as a way of controlling the budget, respecting the voter's most recent contributions, and in response to the history of the place, some buildings were renovated, added to, left as is, and repurposed. The repurposed spaces included the conversion of an existing round classroom building into a new student services / administration center which more than doubled the area of the previous administration area.

The Multipurpose Room was renovated to include some upgraded finishes, graphics, and revamped rest rooms. With movable furnishings and a much-needed new storage room, the MPR is entirely more functional.



MPR RENOVATION / KITCHEN ADDITION

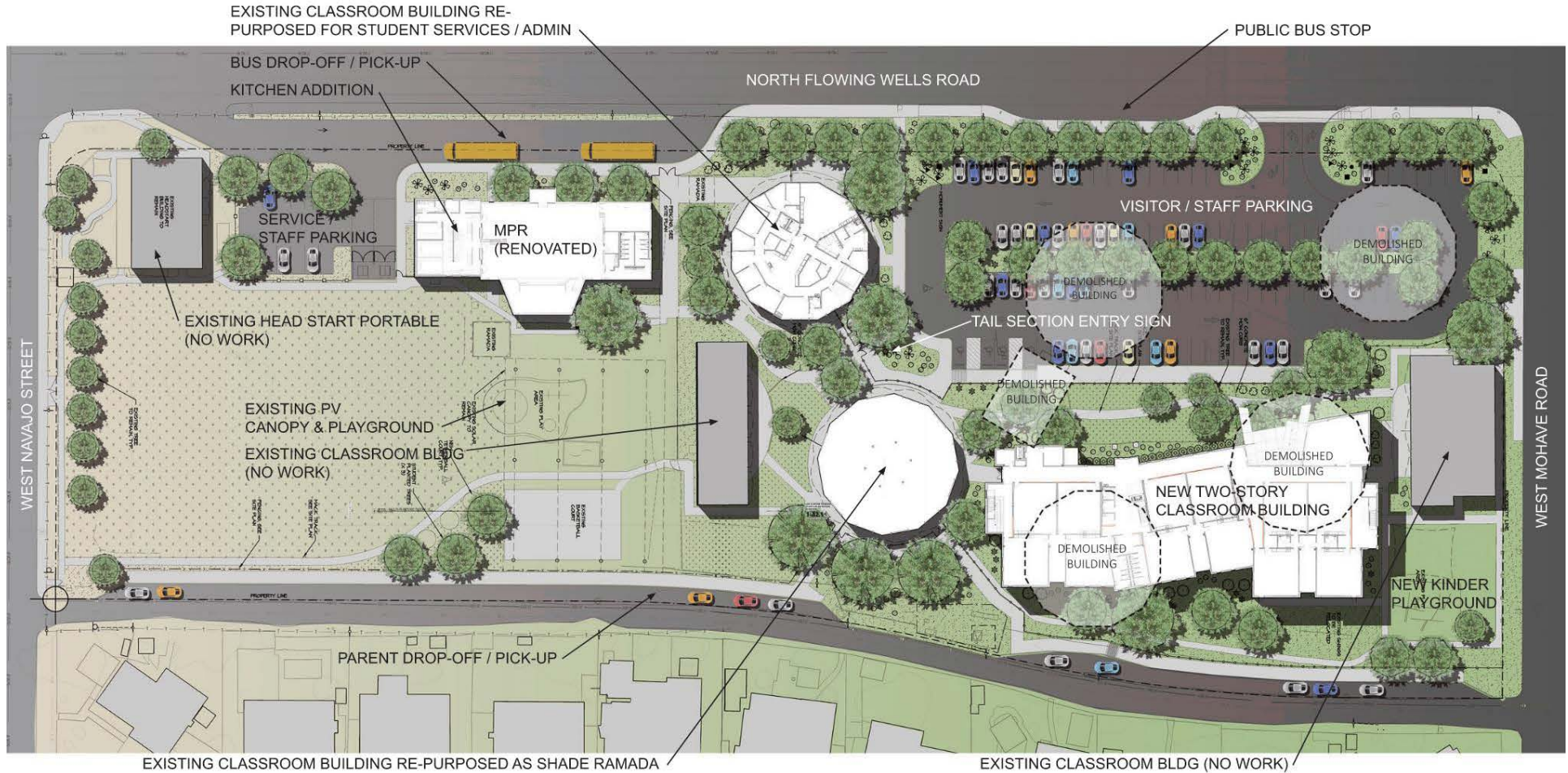
ADAPTABLE AND FLEXIBLE (CONT'D)



5 PHYSICAL ENVIRONMENT DESIGN

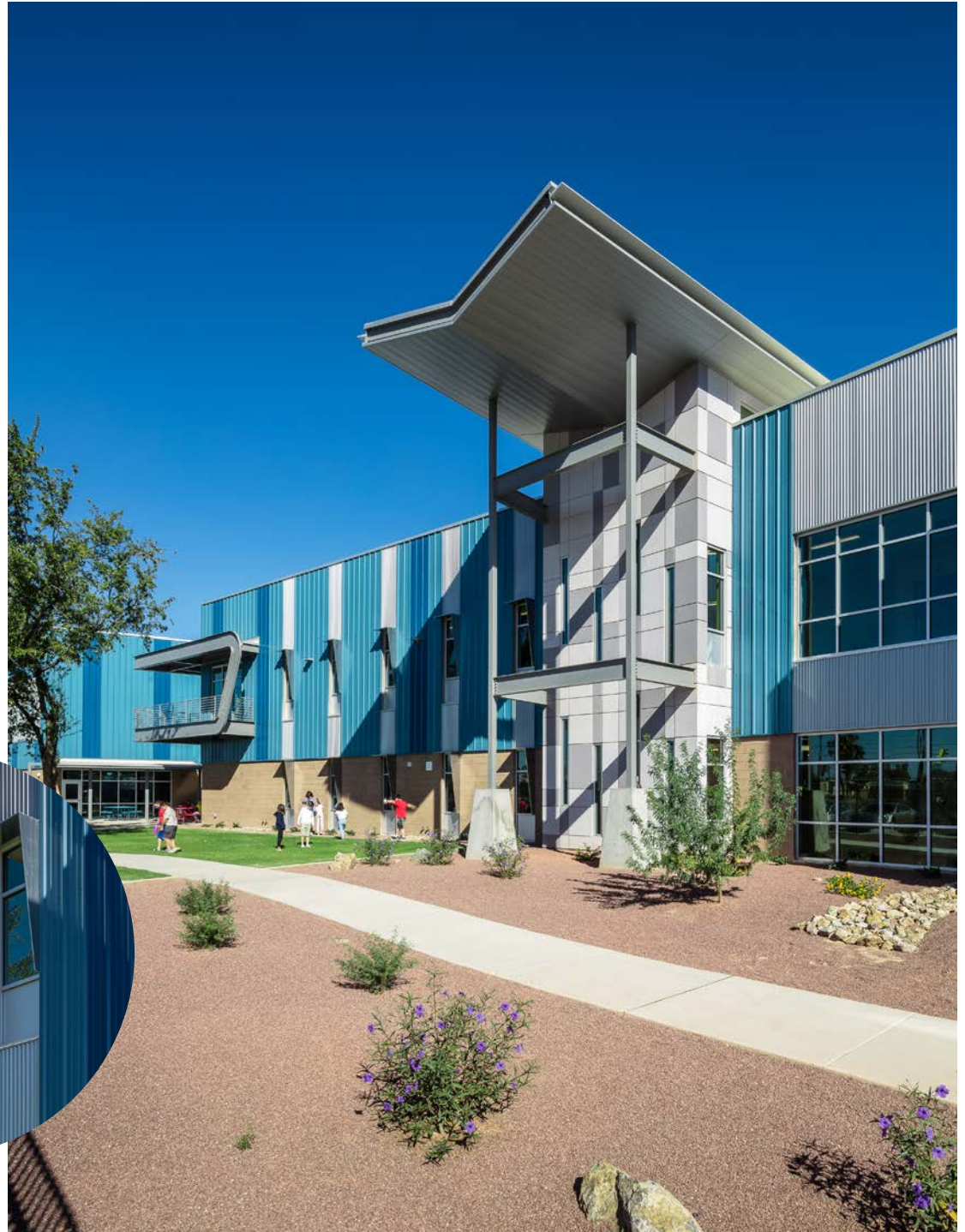
SITE PLAN

The project site is only 6.7 acres. A typical elementary school site for this student population of 660 is 10 acres. The gray existing classroom buildings, built in the 1990's, were to remain and maintaining connectivity was important. Another critical goal of the planning effort was to separate modes of vehicular circulation – visitor and staff parking, parent drop-off and pick-up, bus drop-off and pick-up, and kitchen service. Phasing was crucial because the school remained open through construction.



PHYSICAL ATTRIBUTES OF THE ENVIRONMENT

The project utilizes ideas, forms and materials that have a relationship to flight or aviation, historically important in the community. The wing-shaped butterfly roof, stepping vertical windows, angled plate aluminum shades, rolled steel channel deck, and round openings into the media center are just some of the features that connect.



Light, Imagery, and Color

High ceilings, a variety of round light fixtures, and clerestory windows create an animated environment in which natural light changes throughout the day and year.

Abstract runway markings in the floor help with interior wayfinding. Wall graphics consisting of flight-based imagery add color, assist in activating spaces, and visually connect lower and upper floors, as well as existing, new, and renovated spaces, throughout the campus.





View from the Control Tower

Dials, buttons, switches, and gauges are mounted where the students can touch. The converted Student Services / Admin building and the C-130 tail section, along with an outline of the full-sized aircraft in the landscape and on the asphalt (in blue), can be seen from this vantage point.





Project Inspires and Motivates

The building materials, details and forms recall those of aircraft and aviation buildings. This enables the building to contribute, advertise, and showcase the school's special approach to teaching and learning.

Inspirational graphics, all related to flight, are dispersed throughout the school, tying disparate pieces together. In the new classroom building a large image connects the upper and lower floors. In the MPR, where little other than paint was applied to enhance the space (even the existing floor remained), a progression of aircraft in the clouds and the associated vapor trails are depicted.

6 RESULTS OF THE PROCESS AND PROJECT



ABOVE:
AIR DROP OUTDOOR LEARNING PLATFORM
AND COVERED OUTDOOR MAKER AREA

EDUCATIONAL GOALS AND OBJECTIVES

FWUSD is committed to providing diverse learning opportunities that inspire and challenge students to realize their full potential. One size does **NOT** fit all. Each student has unique learning needs, so the District strives to offer a wide variety of programs to support students in their journey of learning. For this reason, providing flexibility and a variety of learning options was extremely important in developing the project – diverse spaces for a variety of activity types, a variety of group sizes, and to overcome a variety of life's hurdles.

SCHOOL DISTRICT GOALS AND OBJECTIVES

The Flowing Wells School District wants their schools to be the schools of choice in the area and they wanted Douglas Elementary to have a unique identity. The school's new image from the street reflects the recently adopted flight-based curriculum, the aviation history of the community, and the District's commitment to all of its students. English is the second language for 80% of the students attending the school. Environmental cues for wayfinding and creating a sense of place were seen as vital. Additionally, a school that is special and unique can boost a student's self-esteem and make her or him feel special and unique.

The Flowing Wells USD recognizes that not all students start life in the same place. It was important that the project support an environment of equity for all students.





COMMUNITY GOALS

Douglas Elementary has been a true neighborhood school for over 60 years. Generations of students from local families have attended the school. However, the area has changed significantly during the last decade. Attention to safety and security, while remaining inviting and welcoming to families, has become increasingly important.

UNINTENDED RESULTS AND ACHIEVEMENTS

Little did we know when we began the design of Douglas Elementary School that the world would be faced with the COVID-19 pandemic. Hand sanitizer, mask wearing, fist-bumping, and social distancing have become new norms. As Douglas Elementary begins its return to in-person learning, outdoor space has never been more important. The new ramada, which was created through repurposing one of the round, thin-shell concrete buildings, has proven to be a vital resource. The more than 6,000sf of covered, outdoor area is perfect for the Sonoran Desert and for spreading and separating students. Originally intended for before and after school gathering, the ramada is now serving as an alternative place for all-school assemblies, lunch shifts, and outdoor learning.

7 SUSTAINABILITY AND WELLNESS



ENERGY EFFICIENT WITHIN THE SOLUTION

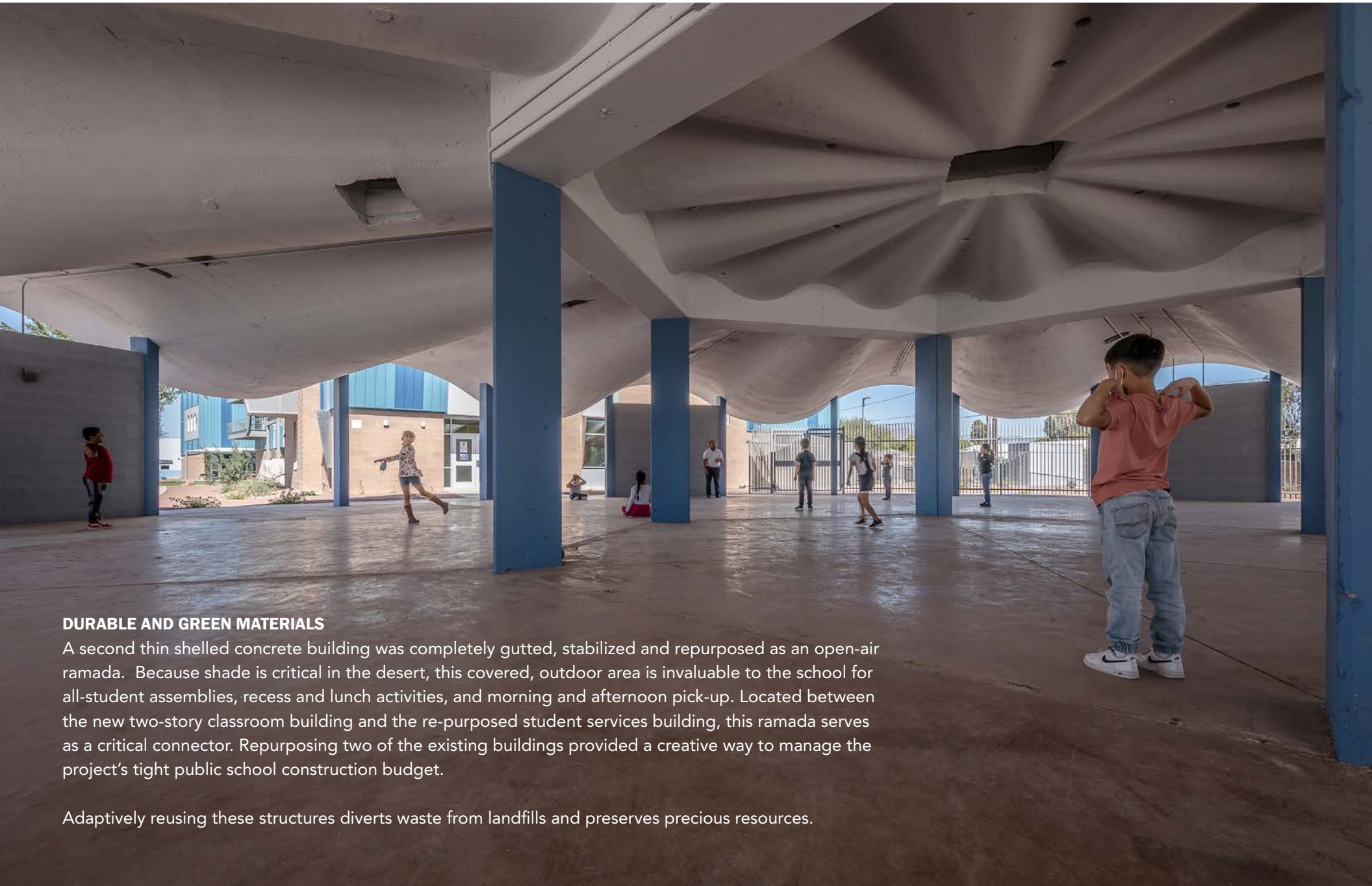
The architectural features contribute to energy efficient operations and resource conservation. East and west-facing openings are minimal in size, protected from direct sunlight, and utilize high-performance glazing. The rest of the building envelope is highly insulative and the mechanical equipment is extremely efficient.

The butterfly roof form gives visual expression to the collection and distribution of rainwater from the entire roof for the landscape. Materials and systems are durable and easy to maintain. The metal siding is prefinished and has a 20-year warranty against discoloration. All lighting is low-energy usage LED and exterior lighting is directed down and minimal in observance of community "dark skies" goals.



DURABLE AND GREEN MATERIALS

As mentioned earlier, one of the existing thin-shelled concrete classroom buildings was reconfigured into the Student Services / Administration Building. A carefully developed air distribution approach enabled the concrete roof structure to be exposed inside. Utilization of this building provided more than double the area previously dedicated to student services and allowed the overall project to include new classroom spaces for every student.



DURABLE AND GREEN MATERIALS

A second thin shelled concrete building was completely gutted, stabilized and repurposed as an open-air ramada. Because shade is critical in the desert, this covered, outdoor area is invaluable to the school for all-student assemblies, recess and lunch activities, and morning and afternoon pick-up. Located between the new two-story classroom building and the re-purposed student services building, this ramada serves as a critical connector. Repurposing two of the existing buildings provided a creative way to manage the project's tight public school construction budget.

Adaptively reusing these structures diverts waste from landfills and preserves precious resources.



HEALTHY ENVIRONMENTS

All learning spaces enjoy natural light and views, either directly or “borrowed” from across the Learning Concourse. Flexible, ergonomic, and configurable furnishings make classrooms adaptable to a variety of needs throughout the day. Outdoor spaces were developed as part of the project to offer further variety and flexibility.