THE TIDE ACADEMY

TECHNOLOGY INNOVATION DESIGN + ENGINEERING

Sequoia Union High School District

2018 LE Solutions | Association for Learning Environments

executive summary

To innovate, we must explore and imagine a future which engages students as creators, building an empowering sense of place and a culture for life-long learning. The design of a new small high school was based on the research of how these students can become successful leaders in technology, innovation, design and engineering. Through an in-depth research-based programming process, the stakeholders developed a school that will become a model for creating workplace-like learning environments, making school a place of excitement, curiosity, wonder and exploration.

Five Guiding Principles influenced the design of the TIDE Academy: human centered, indoor / outdoor connections, innovative thinking, health & wellness and research based decision making.
These principles were developed from research that involved literature reviews, activity based design and project tours searching for the relationship between learning space design and innovative workplace design – asking ourselves: how might a learning environment, designed like an innovative workplace studio, better prepare students to successfully learn and lead.

"How might a learning environment, designed like an innovative workplace studio, better prepare students to successfully learn and lead."

scope of work & budget

45,200	SF Campus
2	Acre Site
3	Story Campus
400	Students
$29M	Construction Budget

1. Learning Studios (1st & 2nd Floor)
2. Dispersed Admin (1st & 2nd Floor)
3. Design & Technology Labs
4. Engineering Labs
5. Vertical Courtyard
6. Student Union & Upper Deck
7. Exterior Team Rooms with a View
8. Outdoor Lab
9. Photovoltaic Roof Panels
10. Green Roof

school & community engagement

The campus will serve 400 students from southern San Mateo County. It will be the first new district-run high school built in the East Palo Alto / Belle Haven area in 60 years. Since Sequoia closed its Ravenswood High campus in East Palo Alto in the late 1970s, most high school students east of Bayshore have been bused to schools across the freeway.

According to the Sequoia Union High School District, over 500 students live within 4 miles of the school. Challenges with local industrial business and the size of the site were certainly concerns; however, the importance of a small high school in the heart of the innovation center led to a design process that required innovation to overcome the challenges.

This industrial park area has been undergoing a significant neighborhood transition into an innovation cluster. With high-tech neighbors like Facebook, the academy is in the center of the hub. Therefore, a project that engages the community and shares the educational opportunities within became a driving design strategy for the campus, both organizationally and architecturally.

school & community engagement

Stakeholders were challenged to shift their mindset: from building physical spaces to designing places of engagement & impact.

DL — Design Leadership Committee

The Design Committee was a diverse group of thought-leaders to provide regular feedback on the development of the project: Chief Facilities Director, Facilities Project Manager, Director of Professional Development & Curriculum, Wellness Director, Instructional Technology Specialist and, finally, several Instructional Coaches / Teacher Leaders

RO — Regional Organizations & Industry Leaders

Involving major industry organizations helped build consensus, emphasizing the opportunities for both industry and students. With neighbors in the Tech Industry, this relationship was influential in the development (Example: Uber)

PC — Planning Curriculum Committee

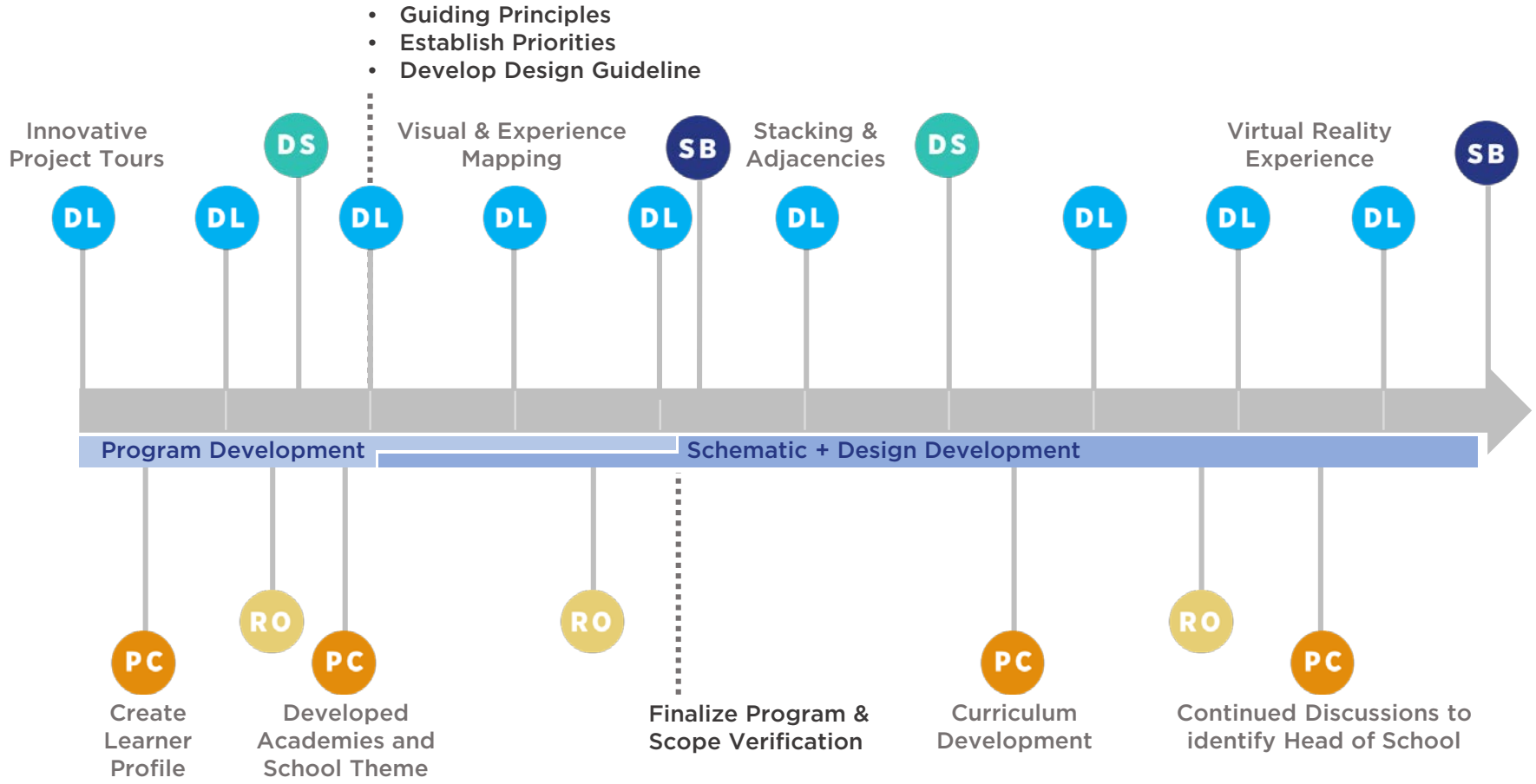
In concert with the facility planning and design, the District coordinated an educational planning and curriculum committee that worked alongside the design team to develop a learner profile, school themes and curriculum for TIDE Academy

DS — Department Specialists

With the development of a new school – the team had no teachers to seek input from and, therefore, developed a strategy to pull key teachers and administrators from within the district to advise on the design space through a series of topic-focused meetings

SB — School Board

The design team presented to the School Board, as requested, in either public meetings or in focused workshops

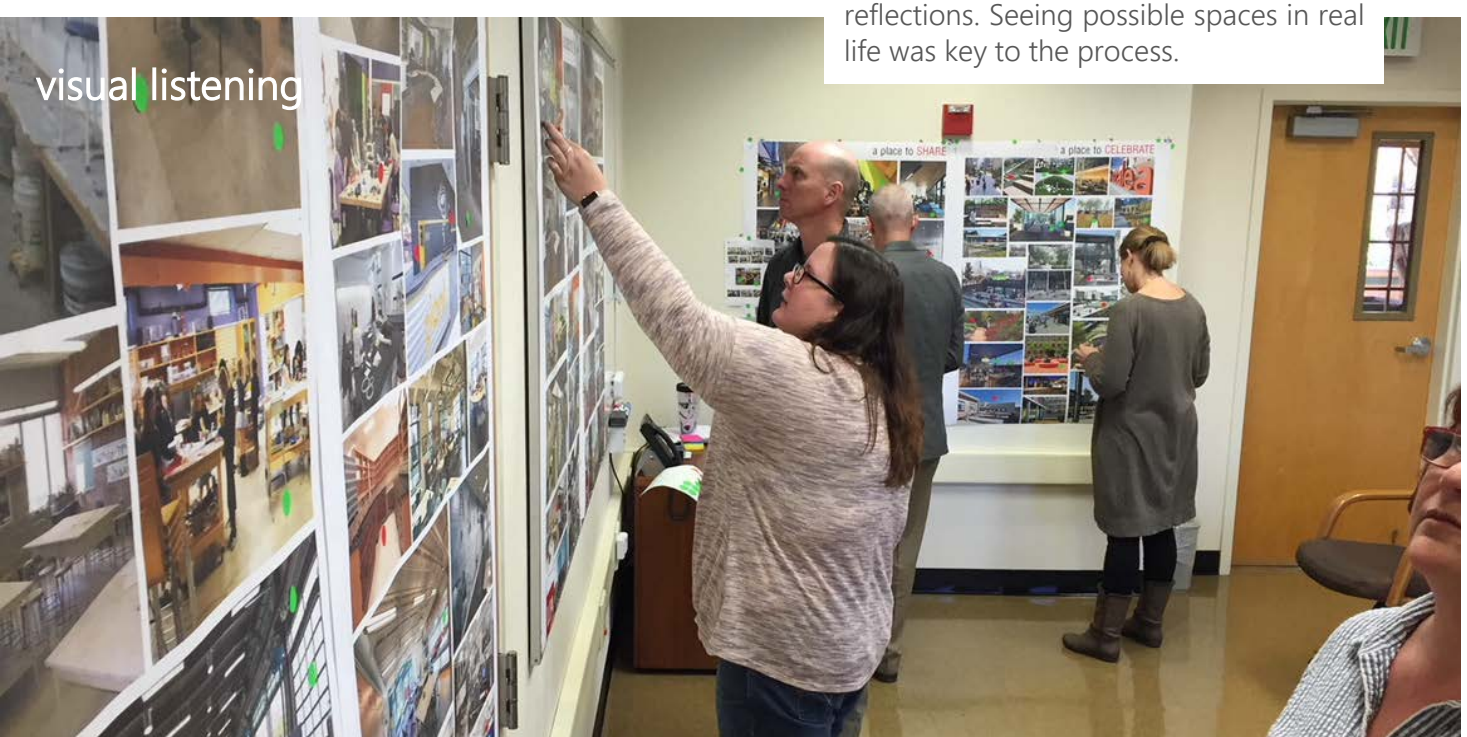


school & community engagement

Design Leadership Committee
Chief Facilities Director, SUHSD
Facilities Project Manager, SUHSD
Director of Professional Development & Curriculum, SUHSD
Instructional Technology Specialist, SUHSD
Instructional Coaches, SUHSD

The planning process began with the team defining the characteristics of the learner profile that would attend this school. Through that process, the team was asked to imagine how might the environment support that type of learner. To discover where the district was in terms of 21st century learning and teaching, everyone participated in an experience mapping activity with a learning spectrum from Traditional to Transformational, aligning space to curriculum goals.

Additionally, the Design Leadership Committee toured and researched case study projects, noting their observational reflections. Seeing possible spaces in real life was key to the process.



visual listening

experience mapping

school & community engagement

"This Project includes a robust planning process that defines the characteristics of the learning profile of the school, and then imagined what environment would support this type of learner."

- SCUSD Superintendent

As a small high school on an extremely tight site, there were certain difficult programmatic decisions the district had to make early on, particularly related to athletics, electives, and educational amenities. Alternative health and physical fitness educational programs were considered and flexible spaces like the 'Performance Lab' on the 3rd floor allow the students to express their interests with a flexible space that can be adapted to changing elective options, supporting the project based curriculum.

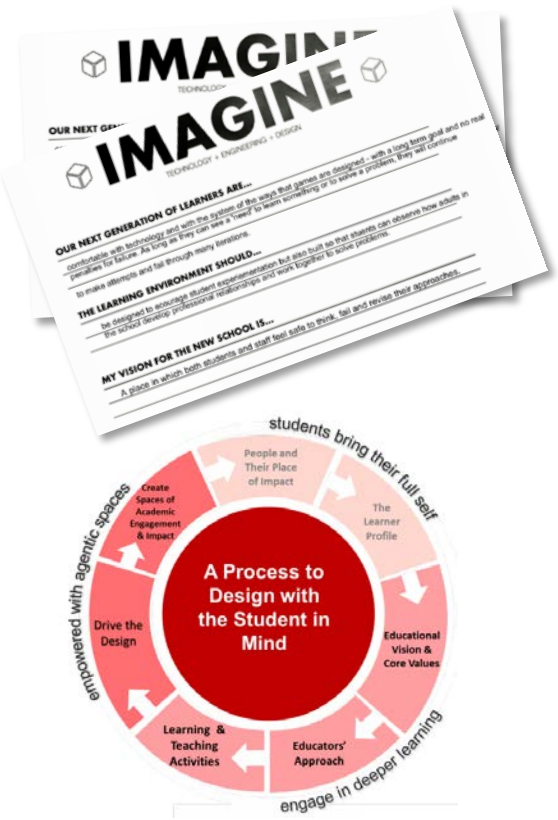
The assets of the location and the innovative learning environment became the priority. The TIDE Academy is located in the heart of the Silicon Valley – with technology and design pathways imbedded in this tech centered community, the internship opportunities and spaces for mentors to visit the campus were all explored in the space design. The 2nd floor features two studios that are designed to be a large space for exhibits and open house events, inviting in investors and giving students a chance to pitch their ideas.


stacking diagrams


virtual reality experience

school & community engagement

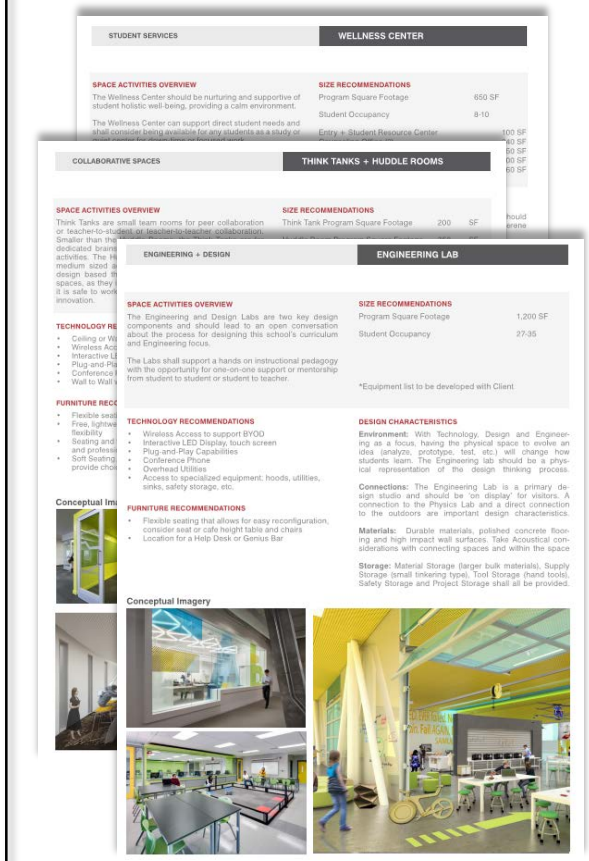
The value of the process: Traditional preconceived stakeholders' attitude toward spatial features were transformed to a dialogue about designing with the student in mind, making informed decisions for the desired learning experience.



learner profile development

reflective space tours

curriculum + space alignment



design guidelines

educational environment

educational curriculum

college credits

As part of the required credits, students will take at least one college English and college math course. The program will include summer courses, goal-setting and regular check-ins with the students to make adjustments to their goals when necessary. Students will always know 'what's next' in their educational career.

project-based learning

Project-based learning as a methodology will be used in all four years at TIDE, starting with smaller projects and working up to a senior seminar. An academic year would likely include several projects, at least from 10th grade on, and all will include a focus on social justice and community outreach.

student internships

Crafting internships that include feedback loops between industry and school staff will avoid outsourcing education to non-educators.

While research on the efficacy of high school internships is non-existent, research on a college level shows a relationship between internships and employment opportunities. One thing missing, and something that TIDE could address: collaboration skills. This will be evaluated along a student's journey to understand the impact of internships.

personalized focus

The new school will take preventative tracking steps in classes such as math and world language that are vulnerable to students being segregated based on academic ability, taking steps to address it. Among those steps: direct instruction to the vulnerable students, working in small groups, computer-based learning, and reassessing vulnerable students every three to four weeks and reforming the groups based on student learning needs. Spaces to accommodate personalization will be incorporated into the design.

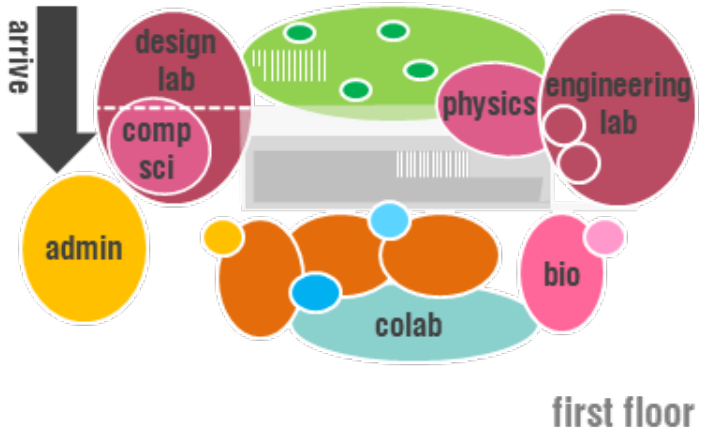
educational environment

The design of the school reflects the innovative and collaborative spirit of the district and is outwardly focused to invite community and industry partnerships to influence students' technology-based education. Designed with flexible multiuse spaces in both the interior and exterior are learning clusters; an innovative approach to scale learning for a true sense of accountability and accessibility (to resources) as well as allowing the staff to know their students. This small high school is designed to showcase the connections between Technology, Engineering and Design.

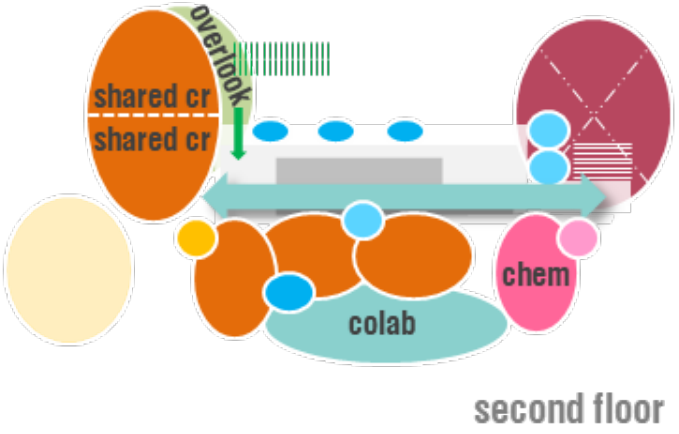
The student experience is reflected in the design with overlaps between disciplines: creating seamless connectivity and interactive building elements throughout the campus. The learning spaces will be stacked on three floors wrapped around a "vertical courtyard" for maximum indoor/outdoor connection at every level. In addition to classroom spaces, the campus features a Makerspace shop, a Coding Lab dedicated to computer code education and software development and a Design Lab for rapid prototyping and implementing design concepts.

Reflecting its progressive curriculum, the school is designed to enhance hands-on learning. All studios are connected, there is no classroom in isolation. To create a seamless use of the school by both students and staff, collaboration is woven into the fabric of the design – even sharing professional learning spaces with student collaboration spaces. Finally, the design allows students to become innovators by providing space that functions like a studio-like workplace with activity-based design strategies: space to think, space to huddle, space to connect, space to innovate and space to share.

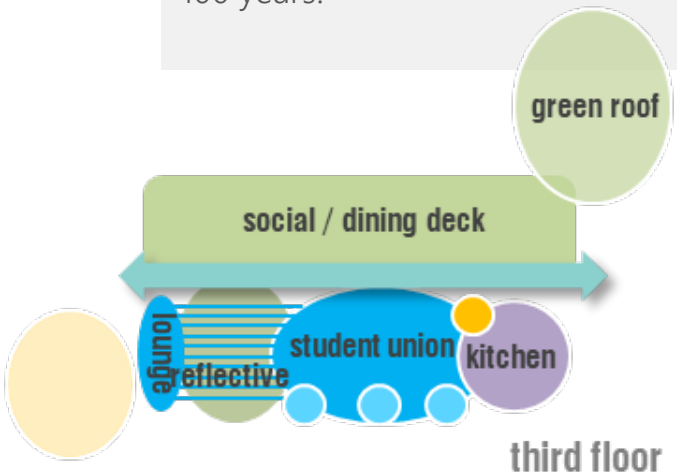
Sequoia Union High School District (SUHSD) has a strong initiative to deliver innovative and engaging student environments. "[We are] very excited to build such a dynamic school building that breaks the mold of 960 square foot boxes once and for all and where collaboration is truest 'built in'," said Matthew Zito, Chief Facilities Officer for SUHSD. "The building is also a singularly beautiful piece of architecture and will serve as a great physical place to attend high school for the next 100 years."



first floor

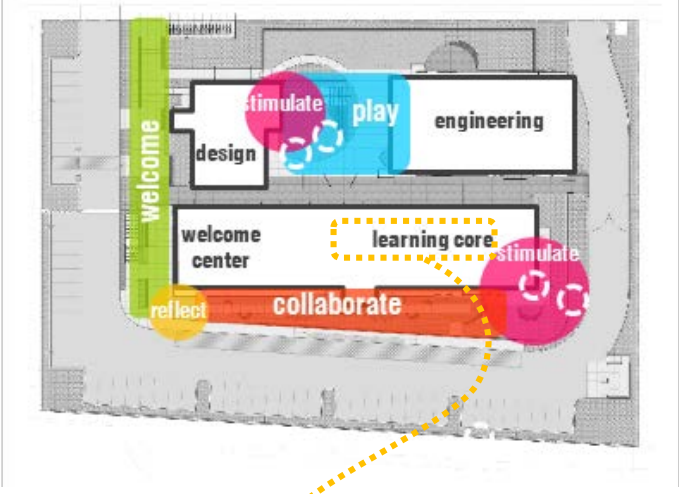


second floor



third floor

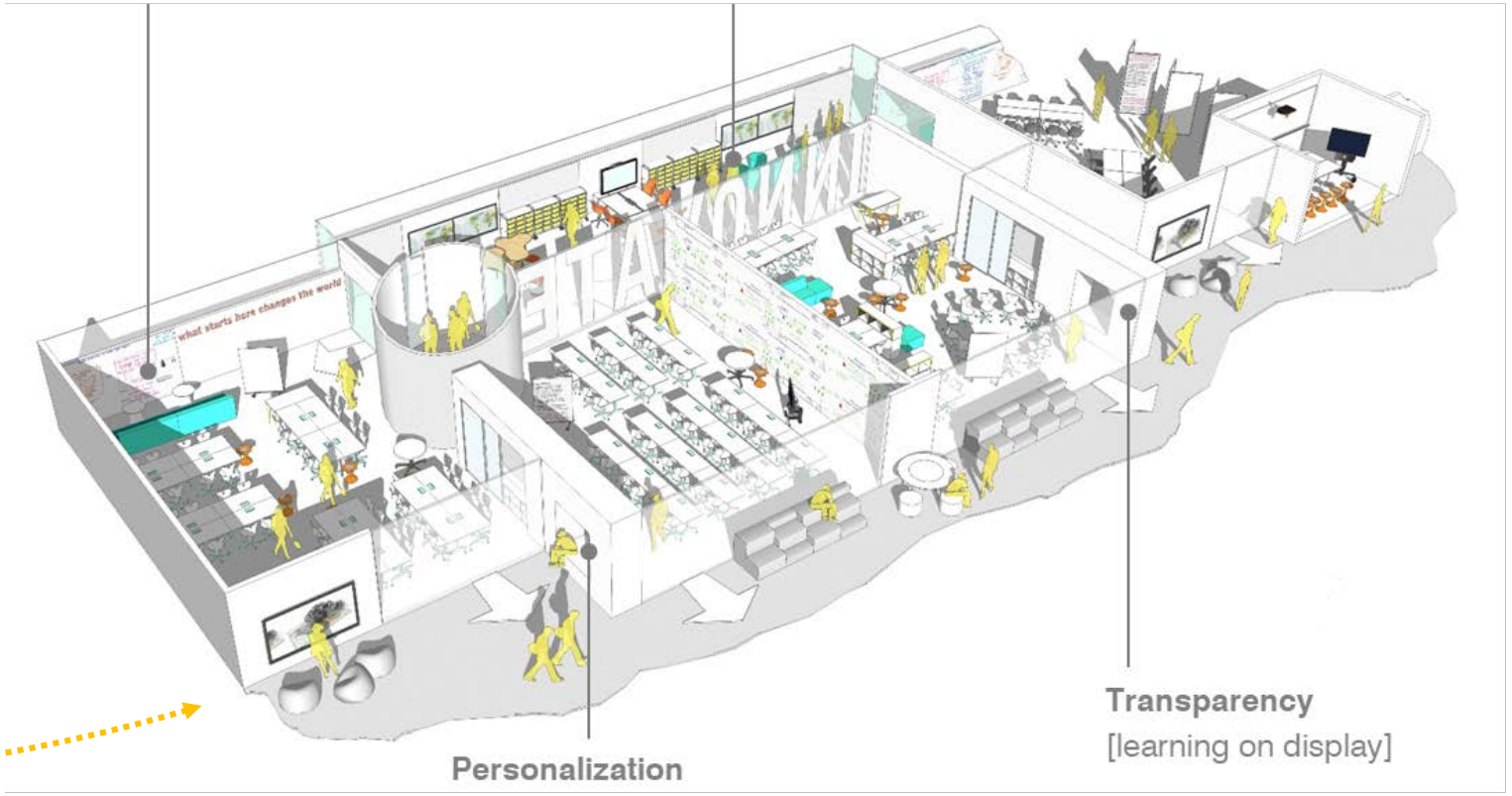
educational environment



Each level features interior and exterior "Colabs", "Think Tanks" and "Huddle Spaces" outfitted with power, data and writeable interactive surfaces to support technology driven education.

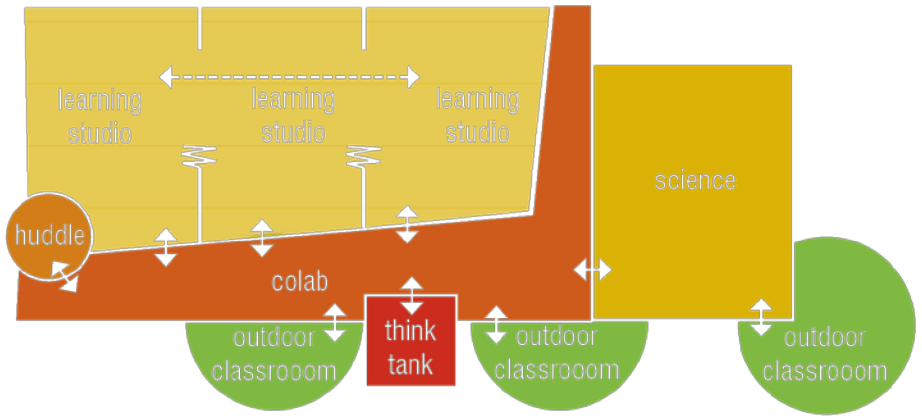
1200 SF Learning Studios
[allows for active learning]

Collaboration
[faculty + student collaboration]



Personalization
[unique spaces for all types of learners]

Transparency
[learning on display]



The evolution of the learning village was a collaborative effort between the Design Leadership and the Curriculum Leadership. The standard California Department of Education classroom size is 960 SF. The small high school planning effort realized the importance for active learning studios, prototyping scenarios (shown above) of different project based learning settings – the result of these exercises led to two strategic decisions:

- Larger Learning Studios: adjusting the 'classroom' size from 960 to 1200 SF
- Intermixing the Science Labs with the Studios in each Learning Village

educational environment

previous standard	larger studios	adjacent collaboration space	think tanks & huddle rooms
32 SF/learner	40 SF/learner	48 SF/learner	53 SF/learner

To create a more 'active' learning setting – the SF per student had to allow for more movement, more variety in learning settings, and more connectivity. The offset of SF that would otherwise go into gymnasiums, administration space or circulation was dedicated to creating these oversized learning labs (labs historically require about 50-60 SF/student compared to traditional 30 SF/student classrooms).

educational environment

- LOBBY
- ADMIN & WELLNESS CENTER
- LEARNING STUDIOS
- DESIGN, ENGINEERING & SCIENCE
- RESEARCH LAB & LOUNGE
- STUDENT UNION
- KITCHEN
- COLLABORATION SPACE
- THINK TANKS & HUDDLE ROOMS
- OUTDOOR DECKS

CONNECTED LEARNING STUDIOS

ENGINEERING HUDDLE SPACE

COLLABORATION SPACE & THINK TANK

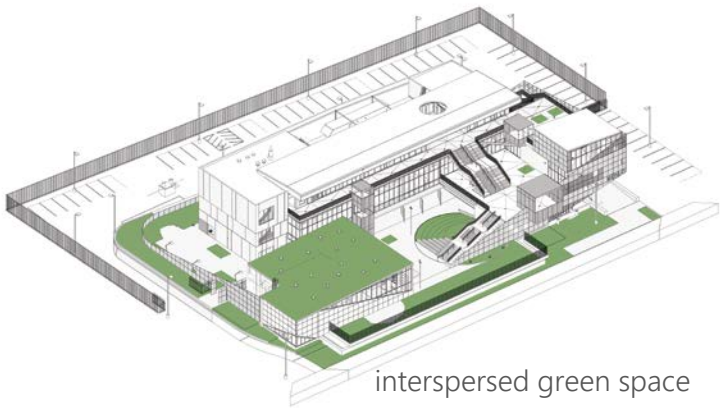
STUDENT UNION

physical environment

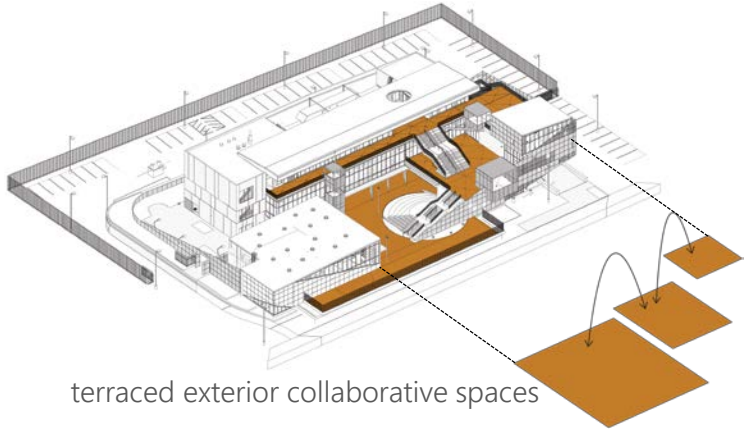
The compact two acre site demanded intense programming for every portion of the site to support the design, engineering, and technology curriculum. With space at a premium, multi-use exterior spaces serve a variety of activities:

- small group study
- outdoor classrooms
- lab experimentation areas
- studio-sized exhibit and display whole school gatherings

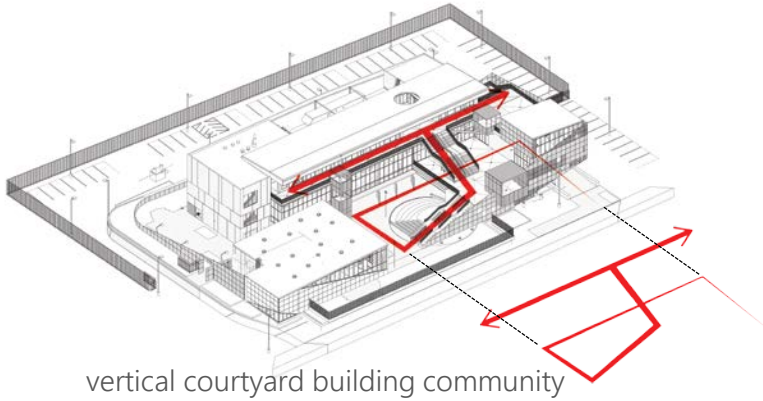
The signature characteristic of the campus is a tiered, vertical internal courtyard that offers the school a large space for assembly, events, recreation and social activities.



interspersed green space

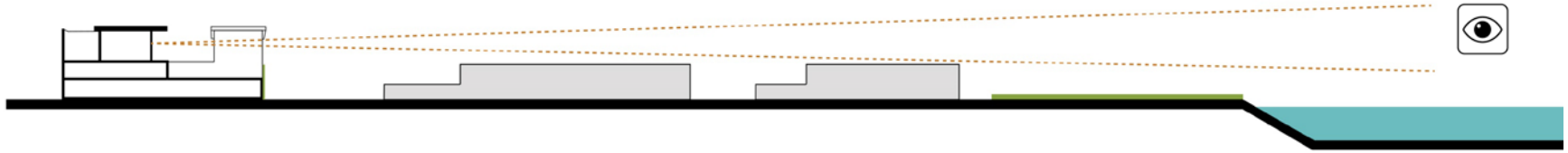


terraced exterior collaborative spaces

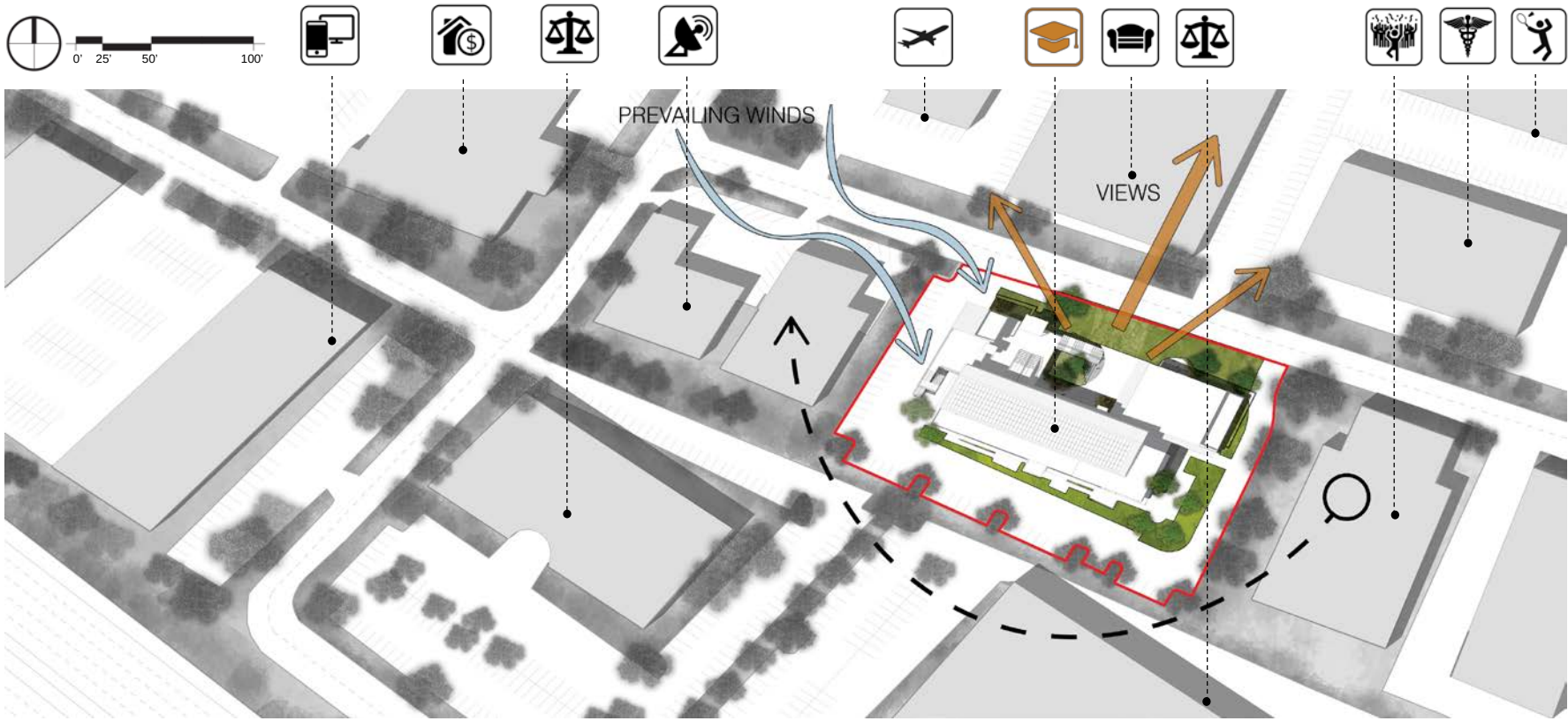


vertical courtyard building community

physical environment



With the surrounding context at only one or two stories on average, the new high school takes advantage of the views from the third floor out to the San Francisco Bay just two blocks from the project site. Located in a light industrial area, the school becomes an opportunity to showcase the innovative educational process and interact with potential industry partners. Additional community amenities influenced the physical attributes as the community center, public library, walking trails and tech centers all contribute to the sustainable and innovative characteristics of the school.









physical environment

"Impressed with the level of enthusiasm, engagement, and representation of various stakeholders, the District embraced this transparent vertical campus and is excited for the first class to arrive in 2019"

Located a quarter mile from the south end of the San Francisco Bay, TIDE Academy's unique location provides opportunities to use community amenities near the site to augment health, fitness and wellness programs. The vertical campus celebrates Active Design Strategies.

An outward-focused campus invites community, business and institutional partnerships to drive technology-based education. In addition to program innovation, it allows the school to become a member of the community using a variety of places outside of the school campus.

With a site of nearly 44,000 square feet, the building is organized to maximize views to the bay. The program is stacked on three floors allowing abundant space for outdoor learning, while the L-shape configuration allows direct access to an adjacent outdoor learning area from every interior space.

physical environment

The project has an optimistic approach to learning — facilitating education that happens both inside and out of the classroom with an architecture that fosters creativity and collaboration. The architecture is both a generator and a reflection of this 'learn everywhere' ethos. The Campus opens out to its high-tech neighborhood in an effort to cultivate learning opportunities for its students.

Classroom spaces are carefully sited and curated, creating a richness of program adjacencies. The design makes the most of this tight site by skillfully weaving pathways and courtyards with interior and exterior teaching spaces that maximize the opportunity for student, faculty, and community interaction. The design of the TIDE Academy reflects an collaborative spirit with these adjacencies and is transparent to exhibit the learning within.

The ground floor studios, colabs, design and engineering labs all have direct access to the outdoor learning space with a roll up door – allowing teams or projects of any size to flow into the extended learning space. The second and third floor learning studios and research lounge cantilever over the main entry plaza to provide a clear and protected point of entry. The glazed west facade is protected by harsh low sun with a perforated aluminum scrim.

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results of the process & project

Matching the innovative curriculum approach to learning, the team applied an equally creative integrated design approach to maximize the school's sustainability. The building is organized to promote daylighting and views. A large, perforated metal scrim shades the building, protecting it from direct glare and reducing solar heat gains. Other sustainable initiatives include: a planted green roof, solar tubes, resiliency and active design strategies, high-efficiency HVAC systems and native, drought-tolerant landscaping.

Innovative incentives to reduce the impact on community traffic:

- On-site vehicle parking permits
- Preferential and/or free/reduced cost parking for carpools
- Adequate, secure bicycle parking
- Organized school-wide walk and bike to school day, week, etc.
- Promotions and activities to incentivize alternative modes of transportation (e.g., competitions to see which grade level avoids the most vehicle trips)
- Use of a web- or mobile-based application to connect students wishing to carpool

sustainable strategies

Site
Native and low water use landscape
Alternative Transportation
Electrical Vehicle Charging Stations
Bio-Retention
Cool Site
Night sky
LED Lighting
On-site soil reuse

Building
East-West Building Orientation and Self Shading
Resiliency Strategies (Raised Site)
Raised electrical rooms (MDF Room on Second Floor)
Exterior Circulation and programmed spaces
Cross ventilation
Views
Green Roof with native species
Cool Roof
Active Design
High performance glazing
Daylighting

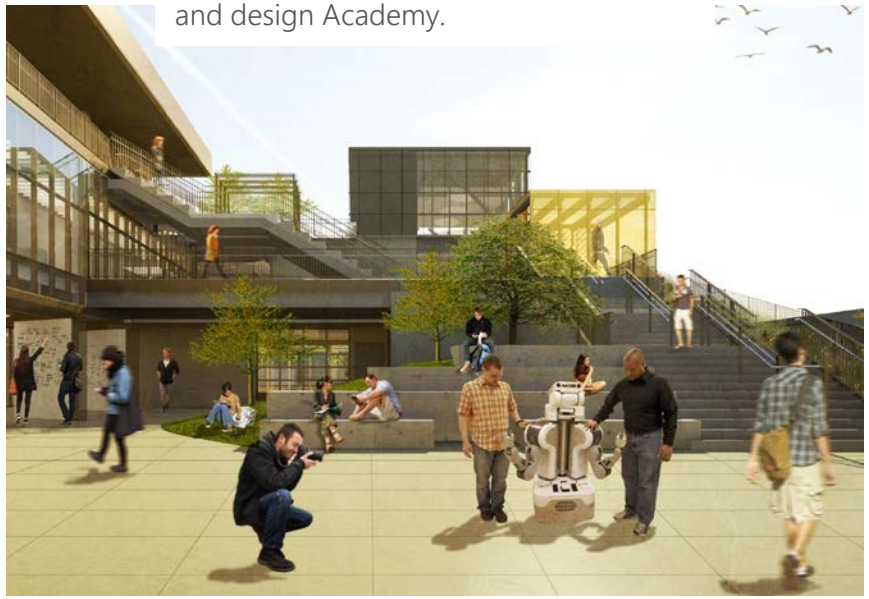
Interiors
Low emitting materials
FSC Wood Products
Recyclable Materials

MEP
Low Water Use fixtures
Rooftop Photovoltaic Panels?
High Efficiency HVAC
Energy Efficient LED lighting
Occupancy sensors
Daylighting Controls

results of the process & project

The school at 150 Jefferson Drive is scheduled to open for the freshman class in the 2019-20 school year. Over the following years, TIDE is expected to reach full enrollment at 400 students, with enrollment determined by lottery.

The design celebrates the innovation of the community while creating moments throughout campus for mentoring and access to the industries' greatest talents: achieving the district's goals to create a truly innovative technology engineering and design Academy.



results of the process & project

Regarding the TIDE Academy, newly hired Principal Mr. Kuliga said the primary mission is to prepare all students for college and career success, to create "a supportive school community that helps all students reach their full potential, with individual attention in a small environment" and deep learning that is "personal, collaborative and authentic." This is a seamless alignment with the educational setting.