

TARBUT V'TORAH EXPANSION

TVT revamped its curriculum to reflect 21st century learning concepts and provide programs geared towards science, engineering and arts, as well as areas that support the whole child.

The results are spaces that foment critical thinking, creativity and interdisciplinary collaboration in the **Maker & STEaM buildings**; and spaces that support a balanced lifestyle in the **Fitness building**.

COMPLETION: JANUARY 2018

LOCATION: IRVINE, CA



EXECUTIVE SUMMARY



CONTEXT
The original k-12 campus was designed in the early 1990s. At the time, the school was strictly Jewish. In 2013, the school was at risk of losing their accreditation due to inconsistent leadership and continual decline in enrollment. The board of trustees developed a bold strategic vision with a goal to grow, thrive and compete as a premier independent school. This strategic vision included a mission of inclusion and diversity as an essential component and expanding facilities to house signature programs in Science/Engineering, Arts and Wellness.

CHALLENGE
There was very limited available site to build on and the school did not wish to diminish usable outdoor open space, in order to maintain a balanced offering of activities. The new construction could not impact ongoing academic activities on campus.

RESPONSE
The program was separated into manageable smaller structures. Previously underutilized planting areas and landscaped slopes were recreated into purposeful learning and social environments. The disturbed landscape was replaced with a demonstration green roof and outdoor classroom spaces. The expansion leverages the concept of 'campus building', complimenting the existing architecture in terms of massing and planning while also conveying a unique identity reflective of TVT's pursuit of educational excellence and mission of inclusion and diversity.

SCOPE OF WORK & BUDGET:	
59,027	SF Modernization
9,360	SF Maker Building
20,000	SF STEAM Building
21.5	Acre Total Site
2	Story Campus
850	Students (K-12)
\$33.5M	Construction Budget



- LOWER CAMPUS**
 - ① fitness building
 - ② maker building
 - ③ gymnasium
 - ④ library / MPR
 - ⑤ primary school
 - ⑥ administration
 - ⑦ music
- UPPER CAMPUS**
 - ⑧ new STEaM building
 - ⑨ student union
 - ⑩ middle school
 - ⑪ sports field
 - ⑫ community center
-



SCHOOL AND COMMUNITY

Established in 1991, Tarbut V'Torah is an existing K-12 community day school in Irvine, CA. This project further expands amenities on the original school property. Divided into three topographical levels, the school is broken down by grade levels K-5, 6-8, and 9-12. While the primary school buildings have an introverted layout keeping an inward focus; the middle school and high school open up for an outward connection to the larger community, including the local Jewish Community Center which borders the STEAM building site. The upper school houses both middle and high school students, and the existing quad, being on the ground level, naturally became the middle school quad. High schoolers had resorted to using a blacktop as their special social gathering space.

Ubiquitous campus materials, like Jerusalem stone and sand colored plaster evoked specific religious and regional connotations. As a response, the new buildings are clad in brushed metal and glass, in contrast with the existing campus. The new materials were selected for their transparent and reflective qualities, to allow students to literally see themselves through the buildings or reflected on their school environment. This deliberate move creates everyday casual moments that put students at the center of their educational experience.

Planning Committee Goals:

- Students need space to collaborate – team work areas
- Space should be ACTIVITY driven, not teacher driven
- Students need quiet places to concentrate
- Maker space – messy space for projects, emerging fabrication technology, prototyping
- Different types of space to congregate and recharge – small, medium and large groups
- Social gathering space for the high school – that create a strong sense of pride and identity
- More personalization of space in strategic places
- A dedicated “Blackbox” Theater space for performances, digital media recording and editing, and “sound stage” functionality



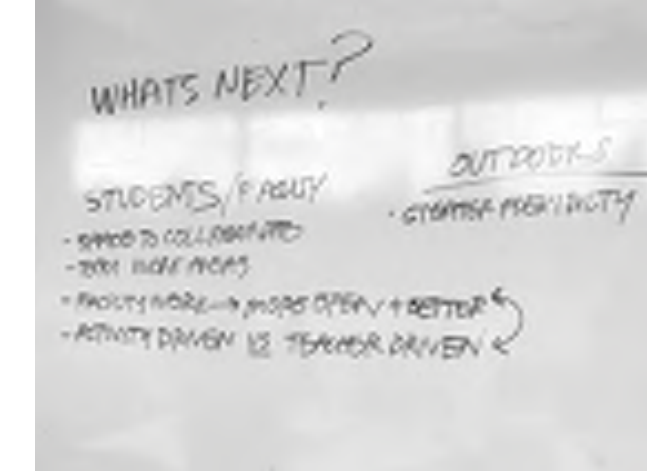
SCHOOL AND COMMUNITY ENGAGEMENT/

The design team was engaged early to codevelop a program that responds to TVT's goals. The planning process involved over 50 student, teacher, administration, and community representatives throughout the development. This led to an exploration process to create future-ready learning environments that support the whole student.



visioning

big-picture goals



furniture evaluation



TvT opens the
K-5 lower school
campus

TvT opens the
6-12 upper school
campus

planning begins
for playground re-
imagination

TvT develops their
strategic vision and
plan

Playground opens,
planning begins for
modernization and
additions

New Maker /
Innovation and
Fitness Center
Construction begins

New Maker /
Innovation and
Fitness Center
Opens

New STEAM
Building Opens

1999

2002

2013

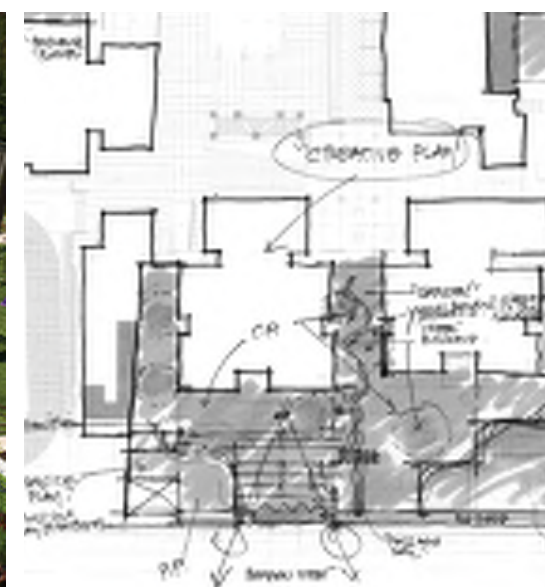
2013

2014

2016

2017

2018



SCHOOL AND COMMUNITY ENGAGEMENT/

The challenge for these educators was breaking away from a more traditional model of education, to being more collaborative and personalizing learning for every student. In order to achieve their goal of personalized learning, teachers realized that their space should be activity driven, rather than teacher-driven.

traditional -----> collaborative



maker lab



science lab



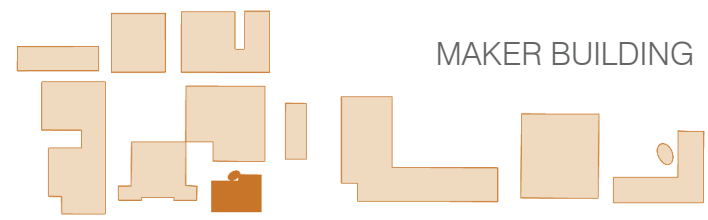
think tank



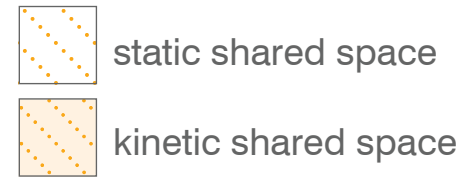
huddle



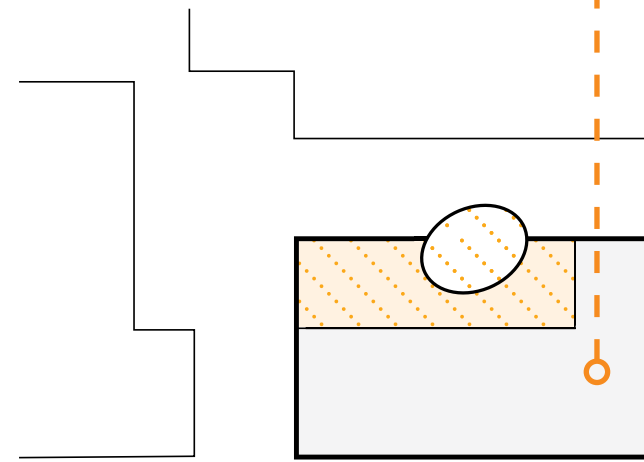
EDUCATIONAL ENVIRONMENT



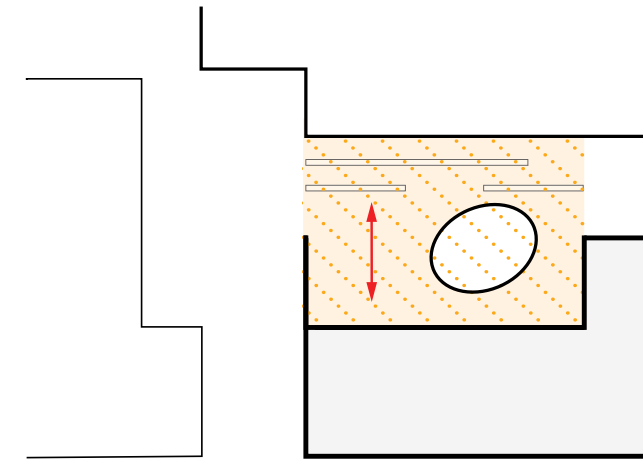
MAKER BUILDING



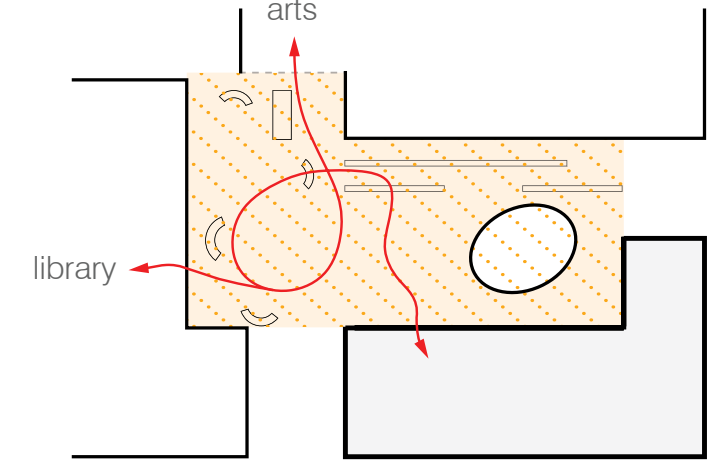
1.14 bldg. efficiency ratio,
far lower than typical CA
average of 1.3



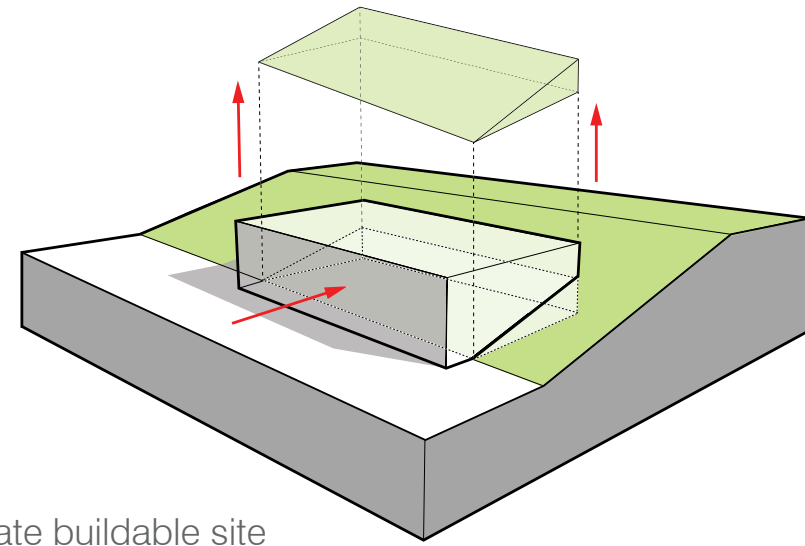
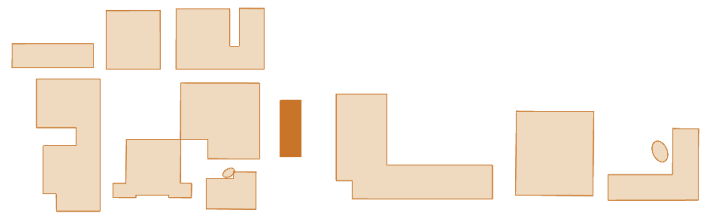
2x size increase of huddle by
partial deployment



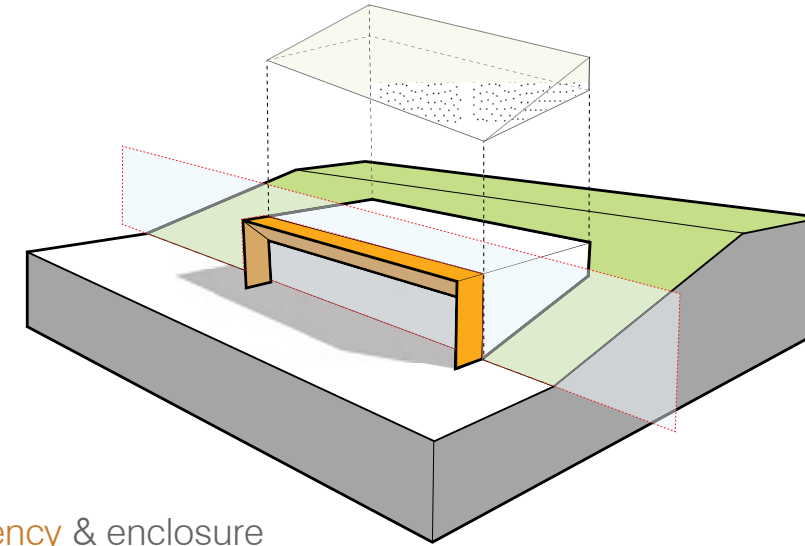
40% of school days with mild weather,
allowing Huddle to fully open



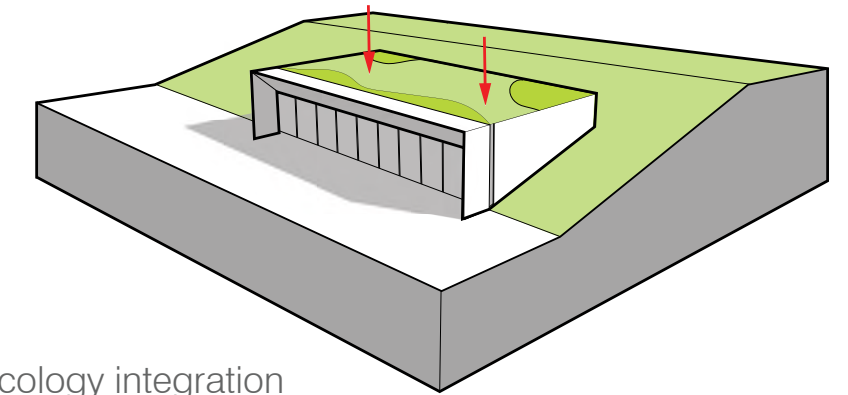
FITNESS Building



create buildable site



transparency & enclosure



ecology integration



% of occupied spaces
within 30' of an operable
window

100

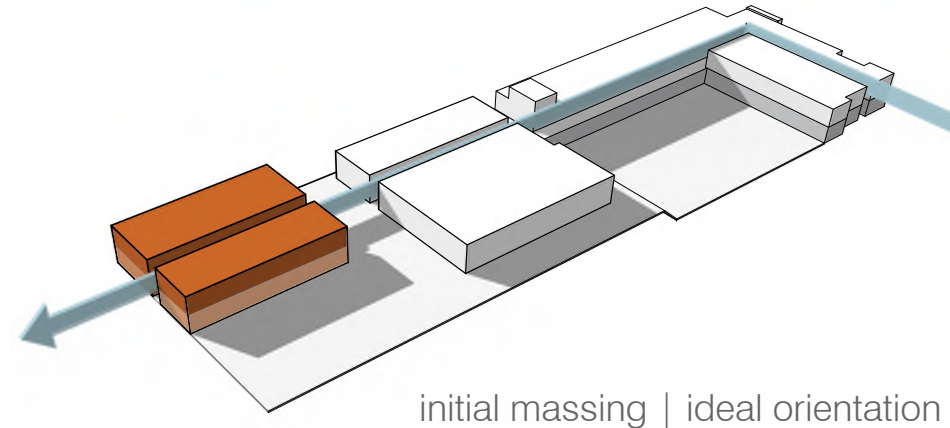
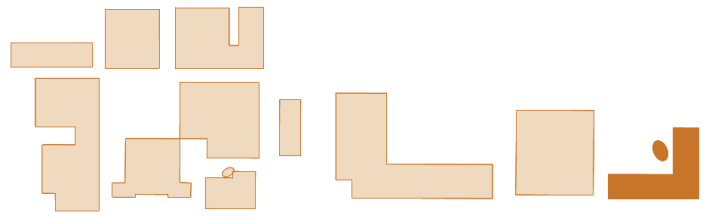
EDUCATIONAL ENVIRONMENT

The STEaM building frames a new quad for high school students. It is sited to allow for expansive views of Orange County; its single loaded corridor configuration takes advantage of coastal breezes for natural cross ventilation. The new facility defines an entry gateway to the school campus from the adjacent community center.

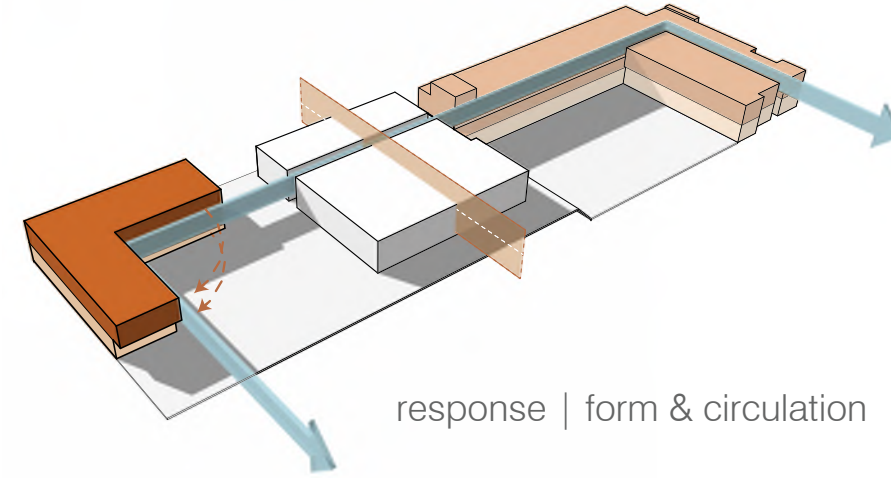
- ① graduation quad
 - ② amphitheater
 - ③ learning pods
 - ④ biofiltration zone
- 50'



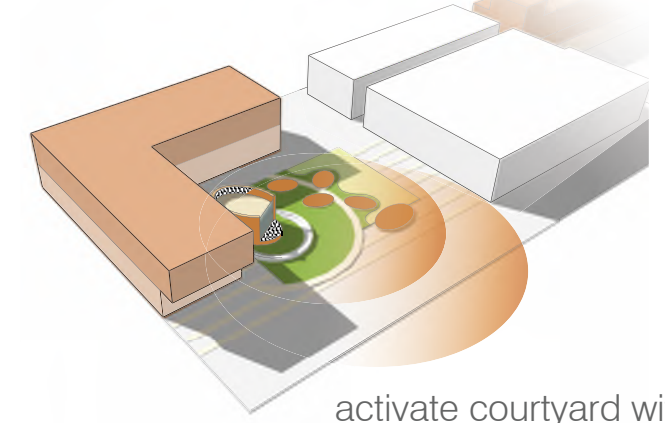
EDUCATIONAL ENVIRONMENT



initial massing | ideal orientation



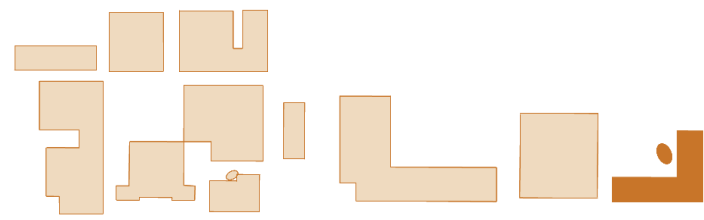
response | form & circulation



activate courtyard with program



EDUCATIONAL ENVIRONMENT



- ① huddle
- ② engineering lab
- ③ recording
- ④ sound stage
- ⑤ scene shop
- ⑥ maker lab
- ⑦ building support
- ⑧ view deck
- ⑨ art gallery
- ⑩ 2D art studio
- ⑪ digital media lab
- ⑫ mechanical well
- ⑬ 3d art studio
- ⑭ physics lab

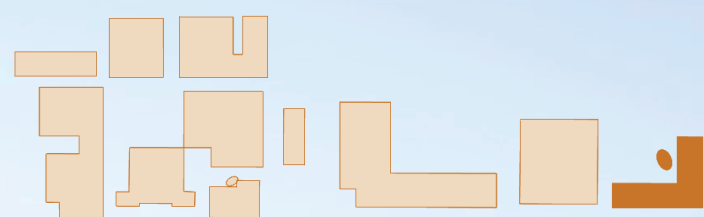


FIRST FLOOR



SECOND FLOOR





PHYSICAL ENVIRONMENT | Lower Campus

The new Maker and Fitness buildings are strategically located to complement the existing k-5 courtyard configuration, while re-imagining previously underutilized areas into purposeful learning and social environments.

To encourage more interdisciplinary collaboration, the Maker building is sited next to the existing Art rooms and library, with an operable wall to expand learning space outside. An Arts courtyard was created to connect the two spaces and provide places for project display and group discussion.



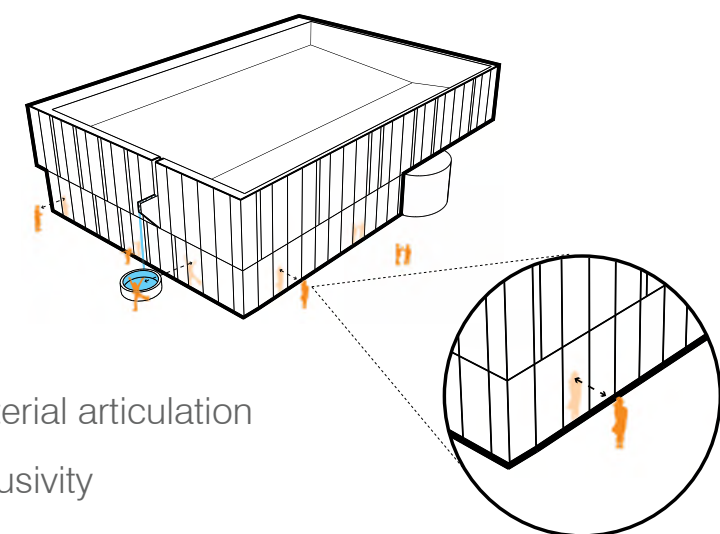
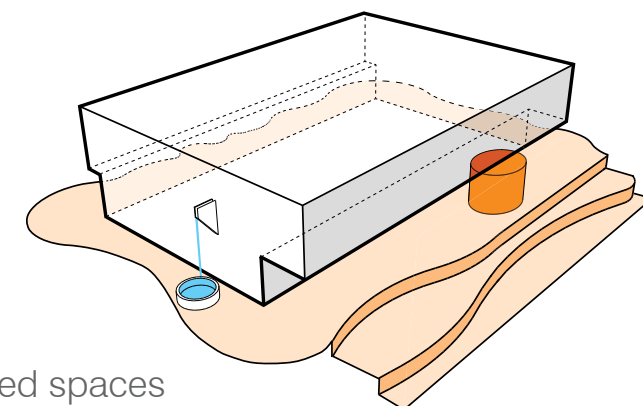
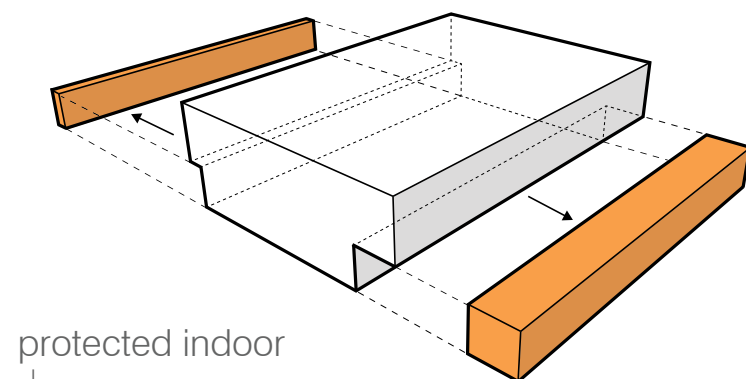
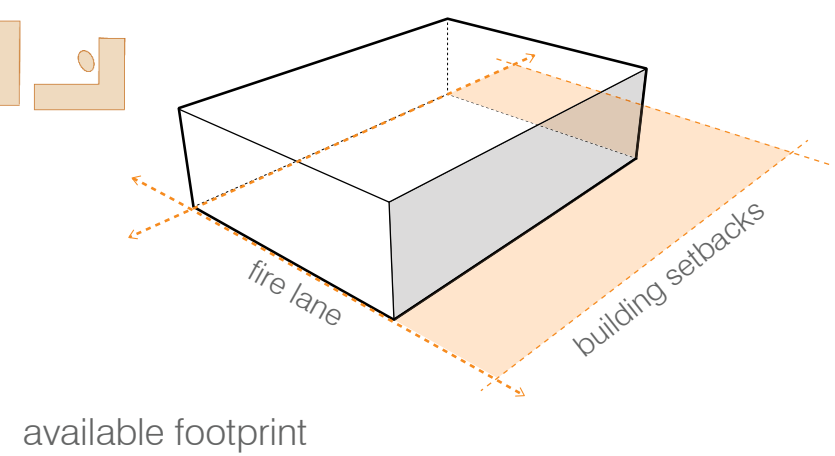
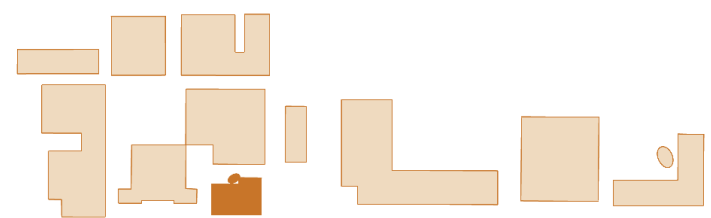


Building glazing is consolidated to child-scaled areas that frame purposeful views and put education on display. Additional glass 'slots' connect interior spaces or give glimpses to the exterior.

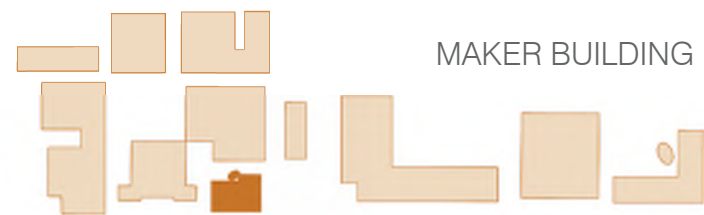
90

% of occupied spaces with direct and meaningful views to the outdoors

MAKER Building



PHYSICAL ENVIRONMENT



MAKER BUILDING

SUSTAINABILITY



① ENERGY EFFICIENCY

The combined project's EUI of 43 is 70% better than baseline, meeting the 2030 Challenge

② AIR

100% of occupied spaces have mixed mode ventilation with operable windows leveraging prevailing breezes. Energy models predict a 5-7% energy improvement.

③ ARTIFICIAL LIGHTING

Daylighting strategies helped reduce interior lighting power density to 0.7 w/sf. | 30% better than code.

④ MATERIALS

Interior finishes reduced to allow building itself to function as an educational tool

A THERMAL COMFORT

Operable windows and large fans accessible to students and faculty for operation.

B DAYLIGHTING

75% of regularly occupied areas achieve at least 300 lux for over half the annual occupied hours.

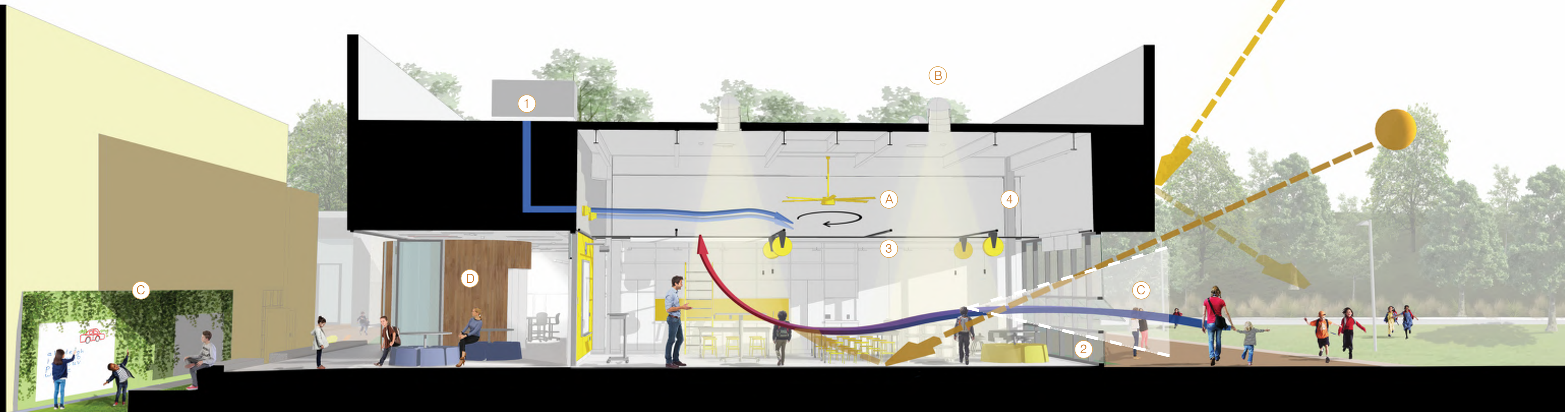
C BIOPHILIA

90% of occupied spaces have direct and meaningful views to the outdoors

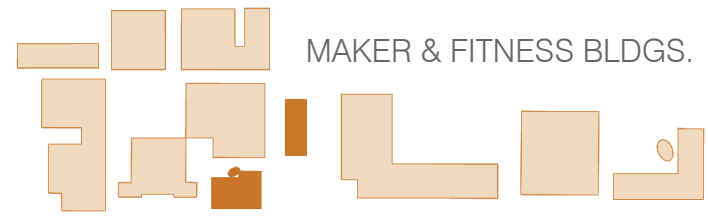
D ACOUSTICS

Variety of spaces provided with range of acoustical character to fit multiple activities

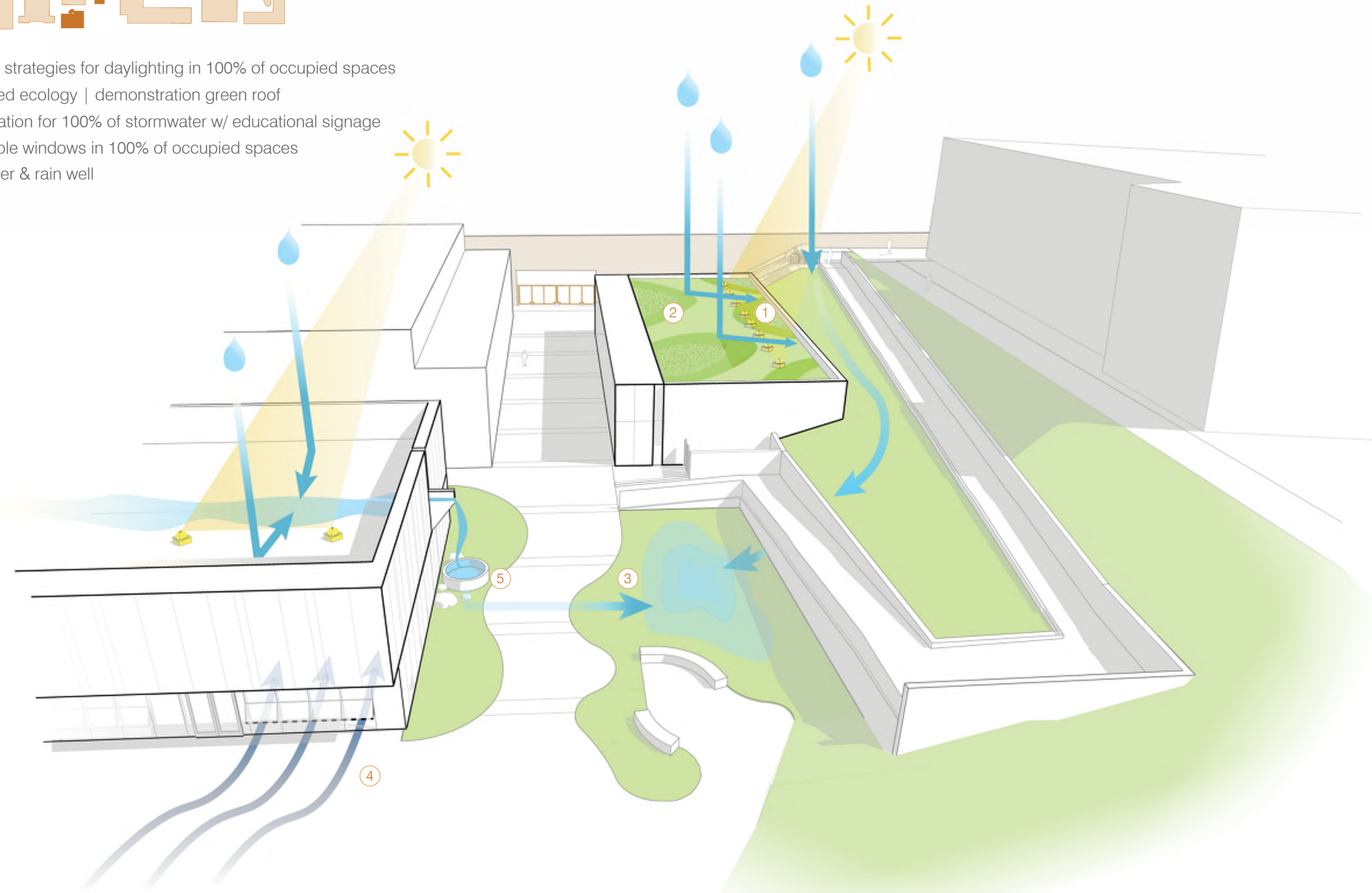
WELLNESS



PHYSICAL ENVIRONMENT



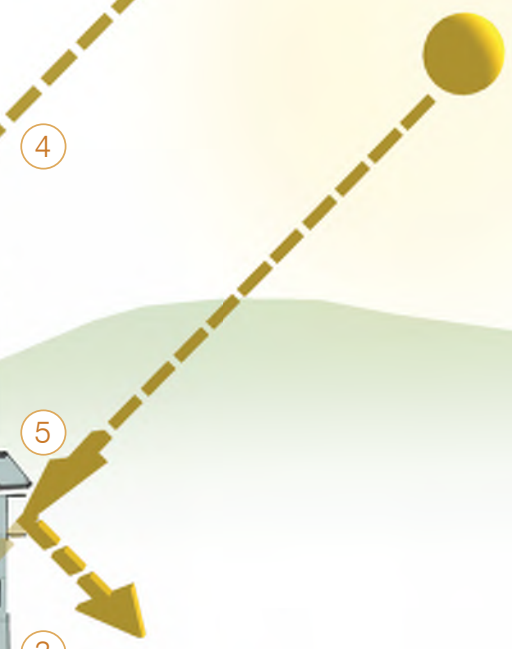
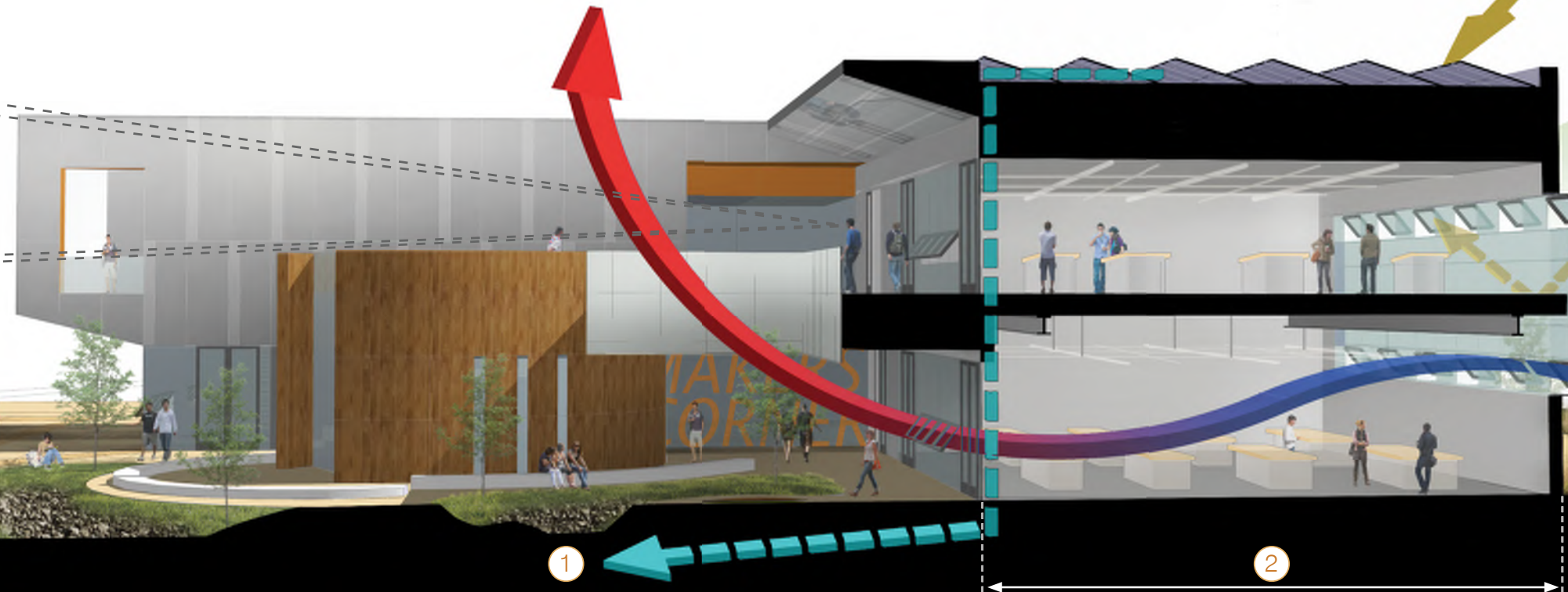
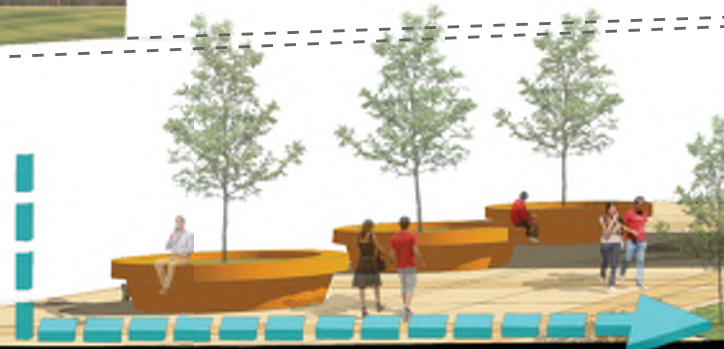
- ① visible strategies for daylighting in 100% of occupied spaces
- ② restored ecology | demonstration green roof
- ③ biofiltration for 100% of stormwater w/ educational signage
- ④ operable windows in 100% of occupied spaces
- ⑤ scupper & rain well



PHYSICAL ENVIRONMENT



STeAM BUILDING



1 Permeable Quad
100% of water run-off is collected in the center of quad and percolated through bio-retention ponds, which double as learning spaces.



2 Efficient Building
A narrow building footprint maximizes open space and takes advantage of sun, wind, and views.



3 Natural Ventilation
Operable windows open to receive prevailing breezes and promote air circulation in classroom spaces. Energy models predict a 5-7% energy improvement.



4 Renewable Energy
Consolidated mechanical system on roof well allows to maximize photovoltaic array for onsite renewable energy.



5 Informed Sun Control
Passive solar protection via integrated frosted glass sunshades, optimized to reduce heat gain on south facade.



RESULTS

“These spaces allow a learner who isn’t going to thrive in a typical 20th century classroom to do well.”

– Jon Cassie, TvT Director of Curriculum and Innovation

outdoor classroom



CNC farm Bot



Garden of Hope



Slides



RESULTS

Since the buildings' opening in 2017, the school has flourished with 135 students gained and is now ranked the #1 best Jewish school in the country.

An enrollment increase of over 5% is expected for the 2019-20 school year.

After its most recent accreditation visit, TVT's efforts to achieve academic excellence were validated by receiving the maximum accreditation length of seven years.

The innovation center is home to many afterschool programs, and often opened up to the outdoor courtyard.

The new programs have sparked connections with the engineering programs at the University of California, Irvine and Chapman University as they have assisted in developing a highly sophisticated engineering program for the high school.

The spaces exemplify the school's values and are homes of JOYFUL LEARNING.

