

# 2021 LEsolutions Awards

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## Sunburst Elementary School

LAYTON, UTAH

ELEMENTARY SCHOOL

PROJECT OF DISTINCTION



# Executive Summary

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Sunburst Elementary, an Energy Positive facility, is the optimal project-based learning environment, incorporating collaborative space, energy conservation, and flexible, playful spaces for young learners. Each classroom wing has a unique theme integrated into graphics and finishes, while pops of vibrant color energize the occupants. Sunburst's theme is Rhythm, creating a unique identity for each wing, and piquing student curiosity. Collaboration spaces are adjacent to classrooms, and are both visually and physically connected by means of an overhead glass door. Flexible furniture is integrated into classrooms and collaboration spaces.

Sunburst Elementary is also unique in that it's a Teacher Academy, meaning partner universities with education programs bring their students here to receive 'in-classroom' training. Classrooms are specifically designed to facilitate this process, a large Training Room was included, and a flex office for visiting instructors facilitates the learning process.

The theme is incorporated into the design of the building in a variety of ways. Patterns in the exterior masonry contribute a fun rhythmic texture to the façade, and colorful metal panel patterns were created by simulating beats of measure in music. Each composed panel represents a portion of a different piece of music.

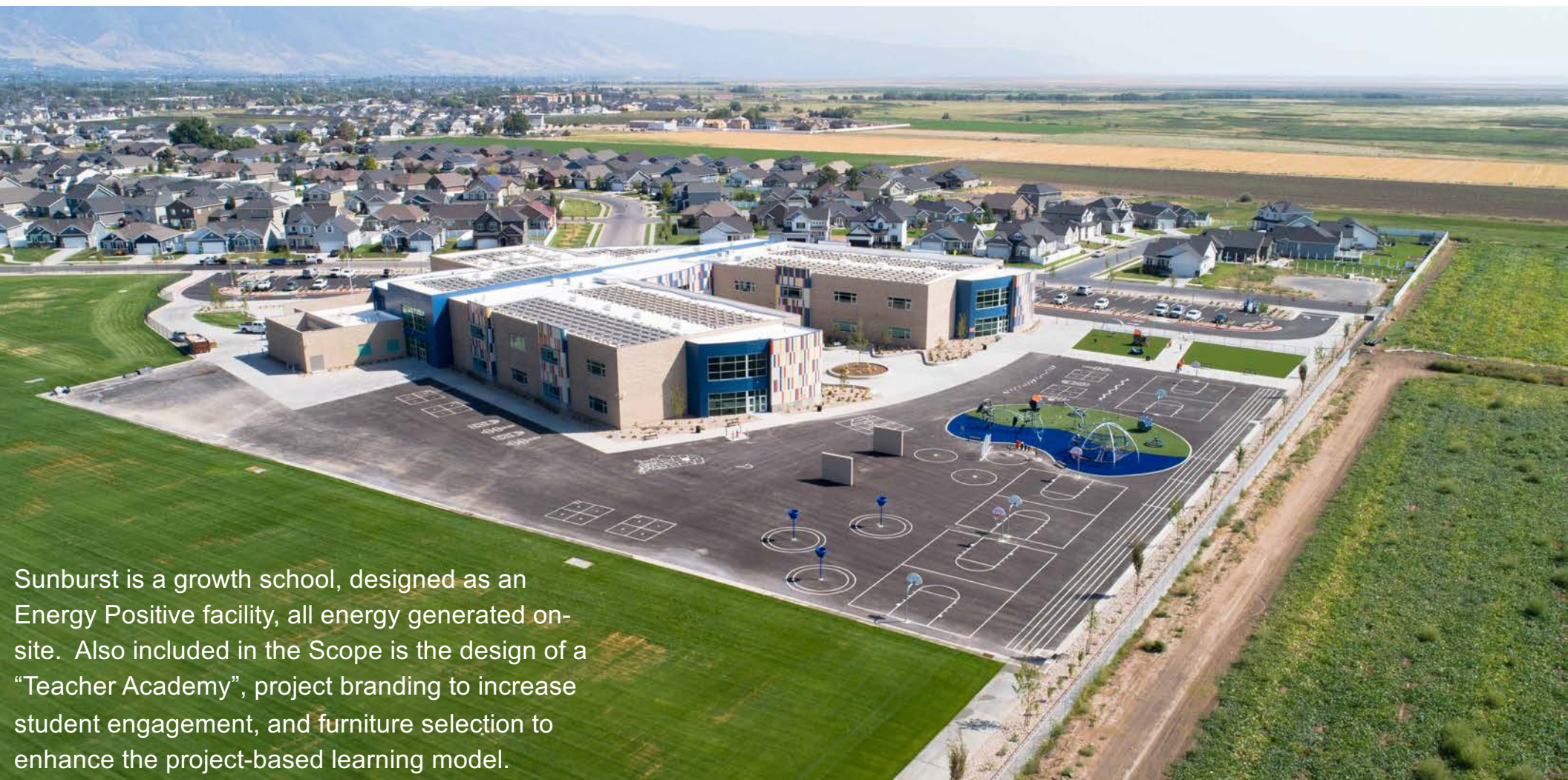




# Scope of Work & Budget

Square Footage: 96,400 sf  
Student Capacity: 850  
Grades Served: Pre-K – 6th  
SF / Student: 113.4  
Site Acreage: 12.19

Number of stories: 2  
Bid Date: February 2019  
Date Opened: August 2020  
Building Only Cost: \$19,204,508 (\$199.22/sf)  
Total Bid cost: \$23,808,077 (\$246.97 / sf)



Sunburst is a growth school, designed as an Energy Positive facility, all energy generated on-site. Also included in the Scope is the design of a “Teacher Academy”, project branding to increase student engagement, and furniture selection to enhance the project-based learning model.



# School & Community Research / Engagement

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Sunburst was designed to satisfy requests from the stakeholders for a building that would be:

- A safe haven
- An exciting place for children
- Highly sustainable
- A durable building that can change over time as teaching pedagogy evolves
- And include meaningful Interior & Exterior Branding

The idea of the spaces where students can engage in group work is an important concept right now, but the interiors of the wings can be reconfigured in the future as required since there are no masonry bearing walls in the classroom wings.

Stakeholders included:

- Parents from the community
- Children at neighboring schools
- District & School Administration
- Teachers from leading schools in the District
- Educators from local University Teacher Programs

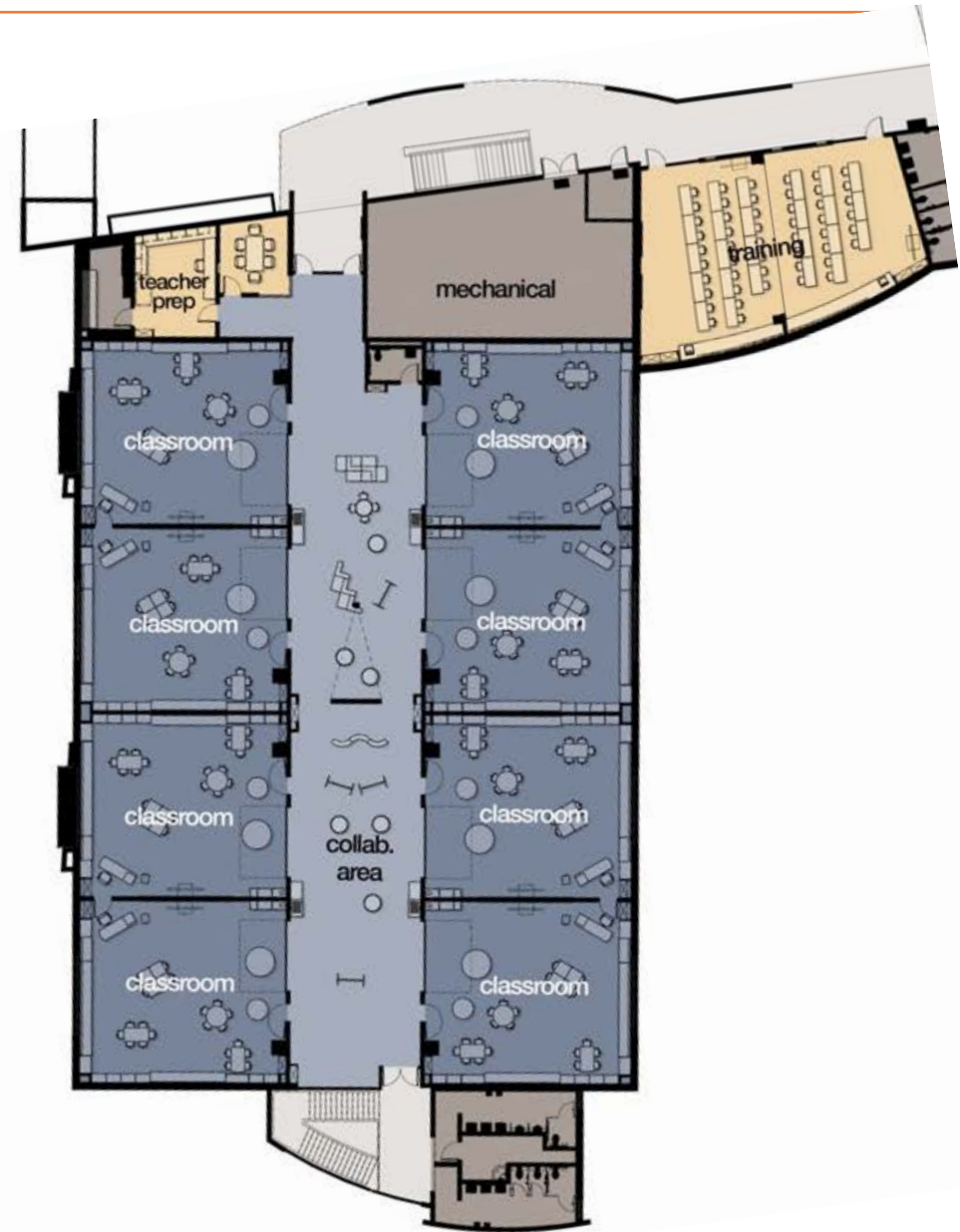


# Educational Environment Design

Sunburst was designed to bolster the educational pedagogy of the District through small learning communities focusing on a project-based curriculum. Each “house” includes 8 learning spaces and a central collaboration space. That goal translated into large collaboration spaces that are fully accessible to the learning spaces using 12-foot wide glass roll-up doors. These doors provide the instructor flexibility in instruction.

They can expand their classroom into the collaboration space by opening the door, keep the door closed and still supervise a small group working in the collaboration space, and collaborate with multiple teachers across the collaboration space by opening multiple doors.

The floor plan also provides the administration the flexibility to reconfigure grade levels into mini-academies, allowing for far easier cross-grade collaboration than in previously built schools.





# Educational Environment Design

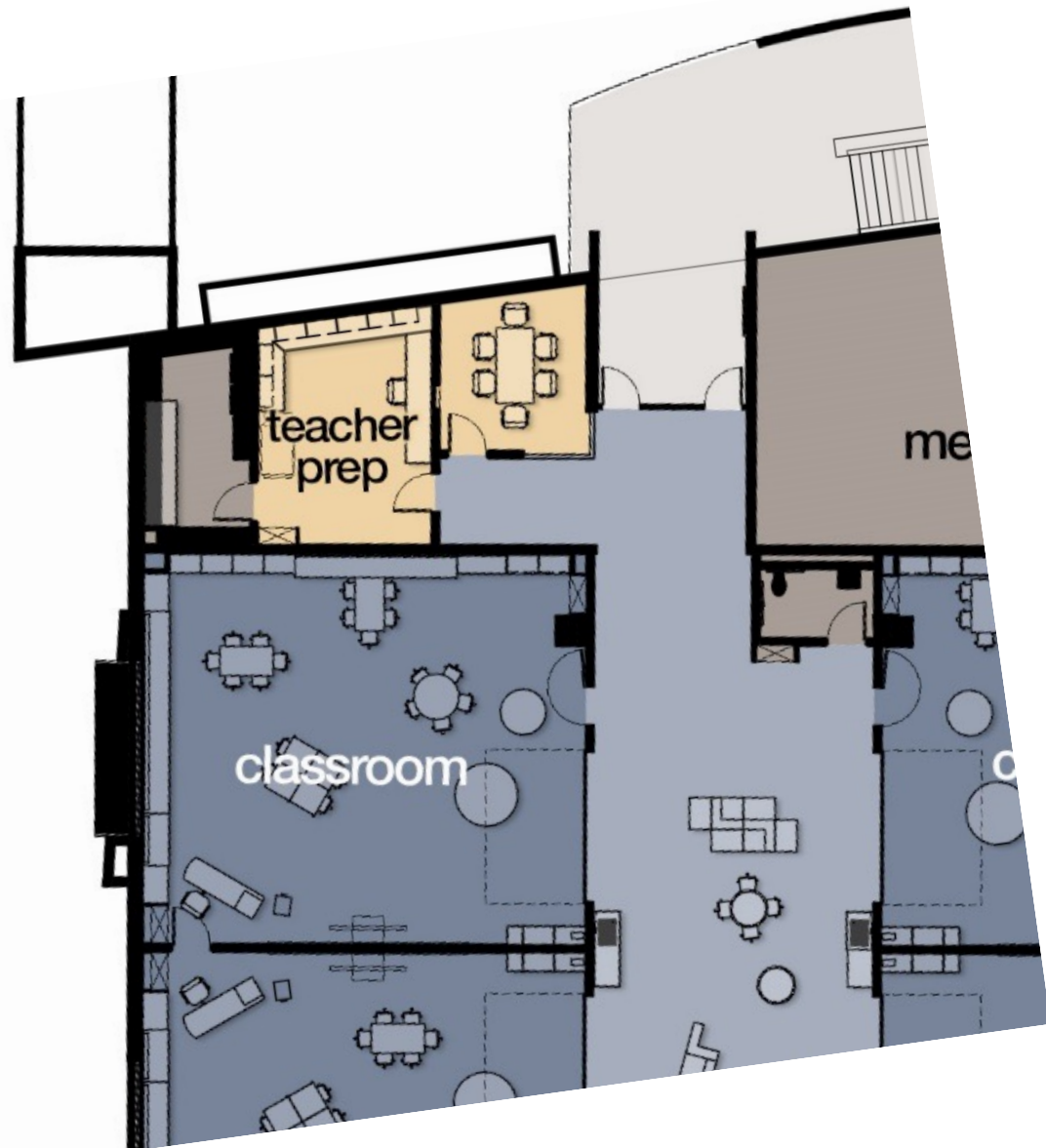
Portals into the 4 houses. Each of the four classroom wings represents a unique category of rhythm: Look, Listen, Move & Make. The portal into each house features inspiring graphics and information tying those actions to different types of “rhythms”.





# Educational Environment Design

Each house includes a Teacher prep room, a teacher storage room and a conference room. Super graphics illustrate the rhythm of the night sky.





# Educational Environment Design

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Students trying out the soft seating in the Collaboration area. Roll-up door to classroom beyond is open..



# Educational Environment Design

Inside the learning spaces, full height cabinets are whiteboard surfaced, serving as impromptu sketching and writing surfaces for students as they work together. Teachers on the planning committee agreed that the sinks normally found in the classroom could be relocated to the collaboration space, allowing the functional size of the classroom to expand. Similarly, all millwork is a more easily utilized 18" depth, returning useable square footage to the learning spaces.

Each classroom door has a different image etched on it, relating to the theme in that particular house, helping little ones to find and recognize their classrooms.





# Educational Environment Design

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Furniture selected directly fosters a project based curriculum. It is all durable, yet light and on casters, so is easily reconfigurable to accommodate a variety of teaching methods. Students change seating types during the day, choosing between chairs, stools that encourage wiggling, soft ottomans and reconfigurable couches, standing at tables with an easy height adjustment, or of course on the carpeted floor. The tables incorporate a whiteboard top that students utilize during their work, table tops which can be flipped up and stacked out of the way during activities that need more open space.

The seating bench at the rear of the learning space is designed for student teachers to observe methods of teaching. There's a slot for their bags, and places to plug in devices...of course, children will also enjoy sitting there to read!





# Educational Environment Design

Large glass doors also open between both the Multipurpose Room & the Maker Space into the main Commons, allowing large gatherings to expand as needed and giving the school a more open and inviting vibe. This transparency highlights an exciting showcase for patrons of student work within the Maker Space as they enter the school.





# Educational Environment Design

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Super graphic of a renowned local art piece, “The Spiral Jetty” by James Smithson, illustrates the rhythm of art, and things artists “Make”.





# Educational Environment Design

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Large glass doors into the Multipurpose Room. The stage is set up for a production of “The Lion King”, but normally, the large window at the back of the platform floods daylight into the building. Graphics on the Proscenium illustrate the inside of a pipe organ.





# Educational Environment Design

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View inside the Teacher Training room. The large glass divider can be raised to create one large space. The furniture was selected and the transparency was designed to create an environment that looks similar to the classroom areas.



# Main Level Plan





# Second Level Plan





# Physical Environment Design

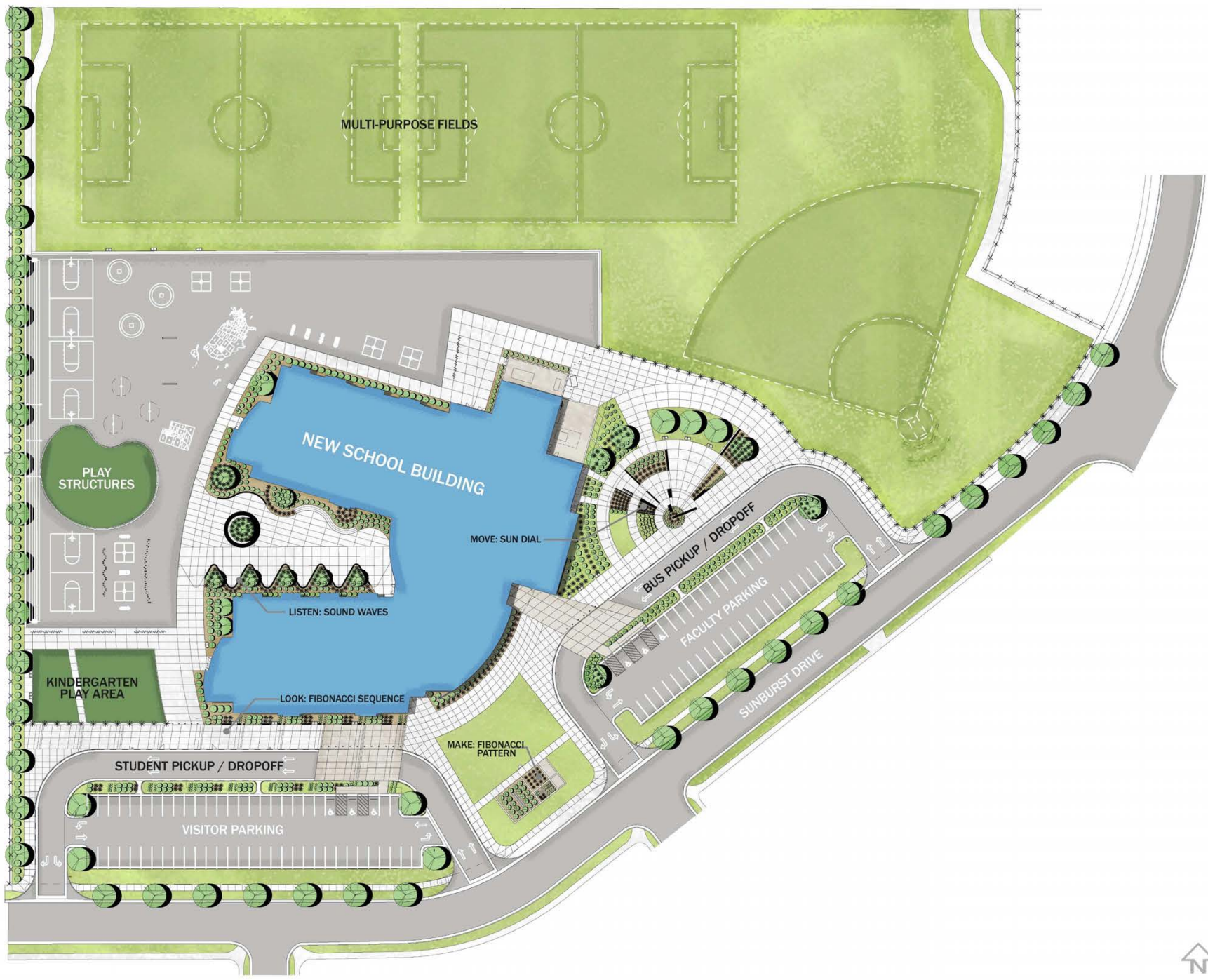
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The landscaping reflects the building branding, “Rhythm”. The landscape incorporates the four sub-themes; extruded sound waves in the concrete benches and artificial turf on the playground (Listen); the Fibonacci sequence is integrated into concrete patterns on the sidewalk, enhanced by sandblasting that really makes the pattern pop (Look); landscaping and concrete patterns radiate from the school's flagpole to create a sundial (Move), and the Fibonacci spiral has been created via planting patterns (Make).



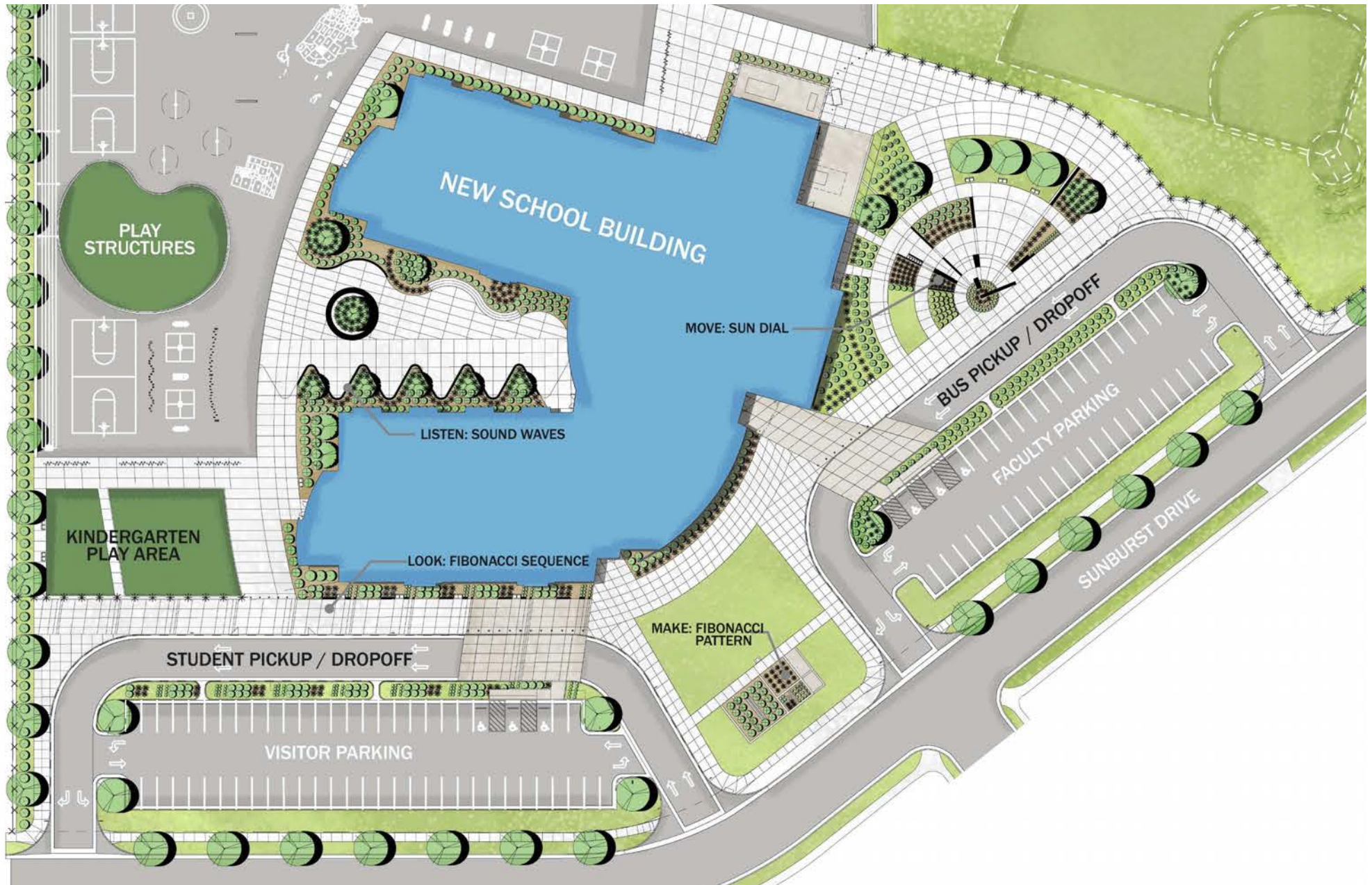


# Site Plan





# Site, Enlarged Detail





# Physical Environment Design

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Extruded sound waves in the concrete benches of the Learning Courtyard; artificial turf on the playground beyond (illustrating the Listen theme). Solar shades on south facing windows are PV panels, generating power!





# Physical Environment Design

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Low water usage landscaping is heavily utilized, and the irrigation method in the planters is drip. On the turf areas, evapotranspiration sensors water only when the ground is dry. Artificial turf is utilized under the play structures.

In the play areas, a wide variety of musical play is provided, allowing students to enjoy making music together, and expanding learning opportunities. Saint-Saens "Carnival of the Animals" & John Williams "Theme from Star Wars" are the musical pieces on the metal panels shown below.

























# Physical Environment Design

The map below shows the position of each colored metal panel on the building along with a QR coded link to listen to the song on which it is based. Use the QR codes to look, listen, and move throughout the school to see what kind of music you can make.

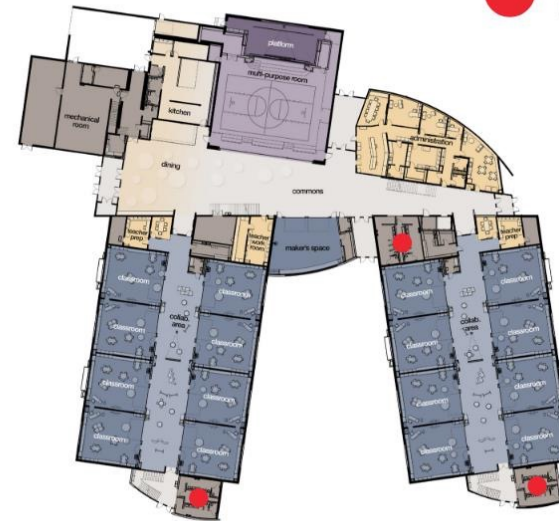


## KEY

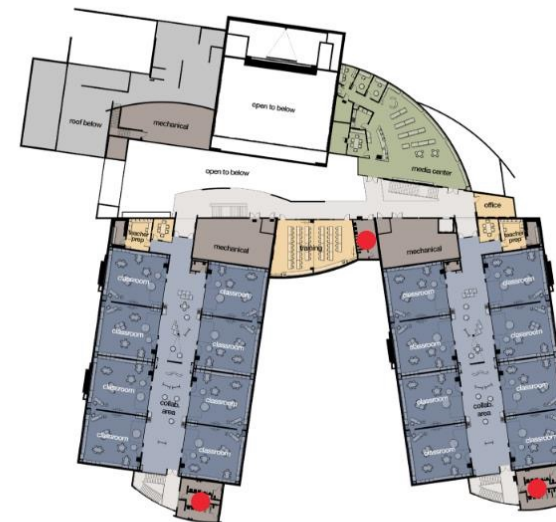
	<b>Pomp and Circumstance</b> Edward Elgar			<b>Star Wars</b> John Williams	
	<b>Jurassic Park</b> John Williams			<b>Peter and the Wolf</b> Sergei Prokofiev	
	<b>Spring</b> Antonio Vivaldi			<b>Symphony No. 5</b> Ludwig van Beethoven	
	<b>Carnival of Animals</b> Charles-Camille Saint-Saëns			<b>Morning Mood</b> Edvard Grieg	
	<b>Jupiter</b> Gustav Holst			<b>Go the Distance</b> Alan Menken	



**The Sorcerer's Apprentice**  
Paul Dukas



main level plan



upper level plan

- administration
- collaboration
- classrooms
- commons
- kitchen
- multi-purpose room
- platform
- media center
- restrooms/storage/mechanical/electrical

Patterns in the exterior masonry contribute a fun rhythmic texture to the façade, and the colorful metal panel patterns were created by simulating beats of measure in music. Each composed panel represents a portion of a different piece of music.



# Results of the Process & Project

The POE survey has been completed recently, and the information gathered is currently being analyzed. Given that the use of the building was greatly influenced by the pandemic this school year, the actual functionality of spaces is somewhat different than it is expected to be next school year.

However, unique aspects of the project, for example the effectiveness of the school as a "Teacher Academy", are being studied, as well as the theming elements relating to piquing the curiosity of the students; also, levels of safety perceived by the students and teachers, the wayfinding that the colors and themes contribute to the occupants, and the comfort and flexibility of the selected furnishings.

Additionally, the outdoor play areas were themed to the rhythm idea, incorporating a number of musical play pieces that have proved to be compelling to the students, particularly the 5th and 6th grade age groups.





# Sustainability and Wellness

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Sunburst produces more energy on-site than it requires. Correct orientation and a superior building envelope, combined with sophisticated mechanical and electrical systems, reduce peak energy demands and maintain low energy use throughout the day.

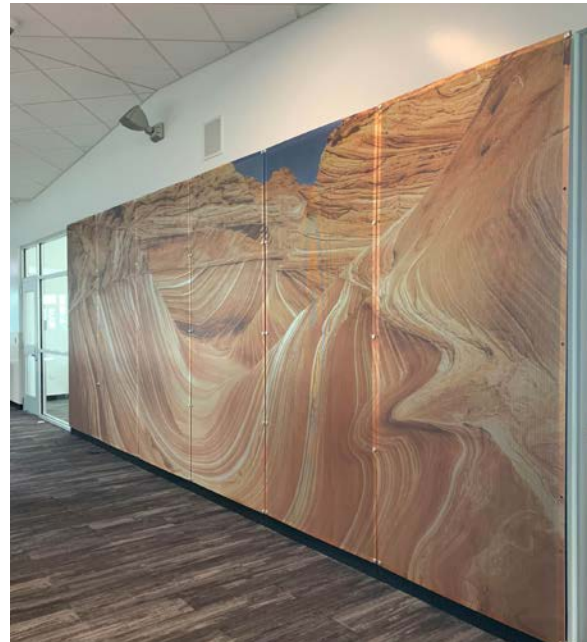
For example, the ventilation air is delivered using Thermal Displacement Ventilation, which quietly supplies low velocity, more temperate air near the floor, reducing energy used to power fans as well as energy to heat and cool the ventilation air.

The delivery of air near the floor also improves occupant health and comfort, decreasing absenteeism by as much as 10%.

A ground-source geothermal system is used to heat the building. When ground temperatures are low enough, the geothermal loop is piped directly to the fan units to achieve “free cooling” early in the season. Coupled with a two-stage evaporative cooling system that uses water to cool the ventilation air, Sunburst has some of the most resource efficient systems available.



View showing rooftop photovoltaic array.



Thermal displacement grills in the second level main hall.



# Sustainability and Wellness

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The LED lighting utilizes a sophisticated control system that allows for integrated daylight sensors, vacancy sensors and multiple lighting levels in all spaces. Strategically placed windows allow ample daylight to enter the learning and working environments. Balancing daylight, controlling glare and thermal heat gain led to the integration of photo-voltaics as sun shades on the south faces of the building, in addition to the rooftop PV.

The classroom wings are oriented E/W in order to allow all classroom windows to face either North or South for better daylighting and energy savings. Solar shades on the south facing classrooms utilize Photo-Voltaic panels, serving a dual purpose.



In the Library, thermal displacement ventilation louvers sit below bookshelves on the extensive exterior window. Occupants rarely use the lighting in most of the occupied rooms.