2016 Exhibition of School Planning and Architecture

Odyssey Elementary School

New Construction

Davis School District

Woods Cross, Utah

Odyssey Elementary School

“The building is part of the learning environment in a way I’ve never seen. It’s designed for collaboration and exploration. I want to be 10 years old again just so I can go to school at Odyssey.”

- Lily Eskelson, 2015 President of the NEA, after a visit to Odyssey, seeing how teachers and students are interacting there.

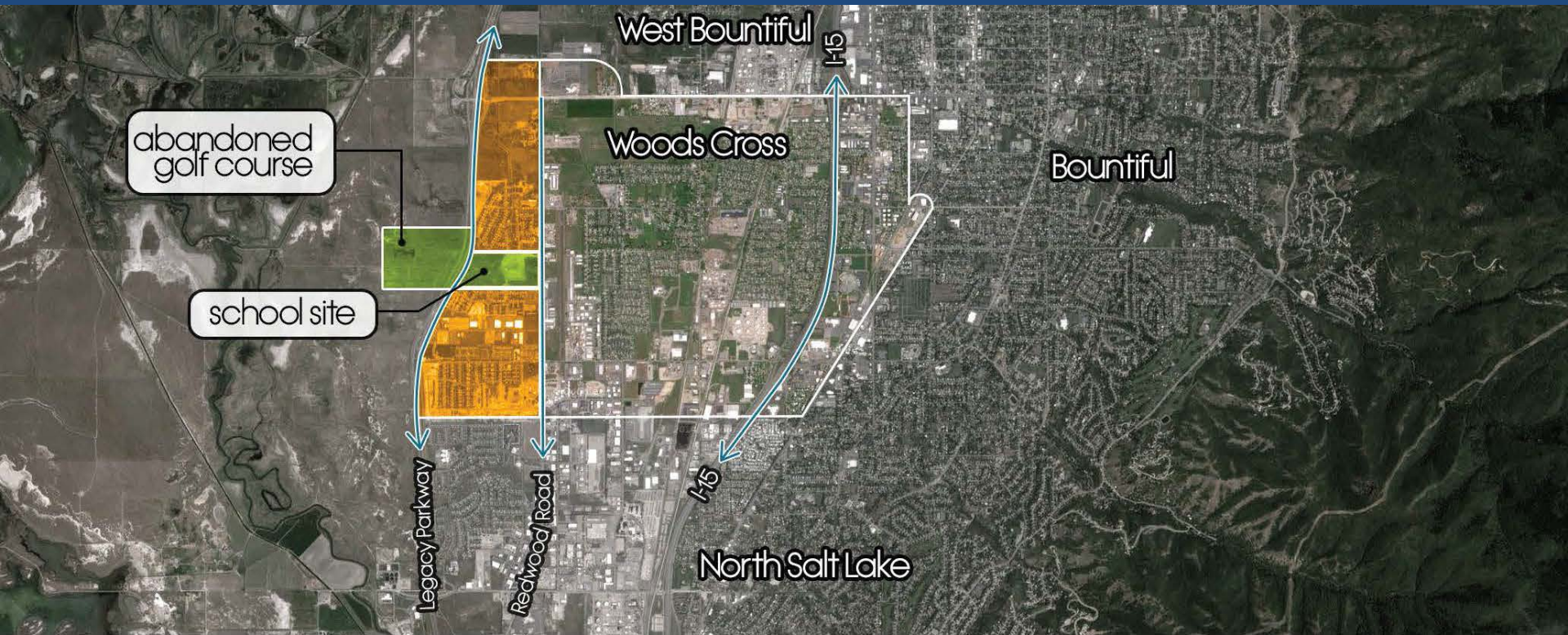
The organization of students into 4 habitats reduces anonymity and encourages collaboration. Classrooms are designed with a 16-foot-wide roll-up glass door, allowing them to flow into the collaboration space. Every classroom door light bears the image of an animal that performs the motion of the house (a kangaroo rat, a shark, etc.). Critical to the success of the project is the totally unique furnishing package of mobile chairs, tables, stools, ottomans and modular soft seating that students move at a moment’s notice to accommodate different learning scenarios.

Community Environment

The school district approached the city to help find the best site. This collaboration led to the purchase of a portion of an abandoned golf course acquired by the local Transportation department for a Parkway right-of-way. The school district and the city master-planned the remaining parcel for additional housing and businesses. Working with the city, Davis School District pioneered the development of streets and utilities to access the preferred school parcel from Redwood Road.

Local residents living north and south of the abandoned golf course participated in city meetings to discuss connecting new streets to their existing neighborhoods.

The school site is adjacent to a wild-life preserve, so special care was taken to ensure that this area was left undisturbed. The goal is that the school, with its **leadership in sustainability and energy conservation**, will serve as a catalyst to an alternative form of development.



Site

The landscaping reflects the building branding, “Bodies in Motion: The Animal Kingdom”.

The ways creatures move are illustrated with plant materials and sculptural concrete. On the north, footfall patterns show up in concrete textures and benches. In the courtyard, the idea of flight or swimming and the swirling vortices created by beating wings or fins are created with benches and planters. On the south side, benches indicating the springing motion of jumping.

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.

Community

Building Design:

Blue-Sky meetings, including community members, developed the program and conceptual design. Issues regarding a 2 story v. 1 story school, school safety, transportation (student drop off), parking, playground supervision, etc. were discussed. Various designs were presented, vetted and developed further. Interior and exterior branding was an important element requested by the design committee.

School Naming:

The School District always engages the community in naming their schools.

A public meeting was held where the architect presented the theme of the new elementary school. The attendees suggested 22 names for the new school, which were narrowed down to 3 choices. These 3 were sent out to the entire community which then voted.

* Please note that these videos should not be viewed prior to jury selection as the architecture firm name is included in them.

Open House Scavenger Hunt Video flyer*

welcome to odyssey	construction recycling	classroom design	building design
http://youtu.be/2E3YkuCiykA	http://youtu.be/0mDZkiDAFF8	http://youtu.be/CLgKADS2mew	http://youtu.be/YH-zzkAxOng
planning	**site design**	**landscape**	**energy**
http://youtu.be/D0GueQrkVUo	http://youtu.be/m1y3c2R7Mzc	http://youtu.be/JoxpgUCKEKk	http://youtu.be/iRE1Ul--faY
photovoltaics	**mechanical**	**mechanical ventilation**	
http://youtu.be/0fTLpNH9k4c	http://youtu.be/lJVkV6JWLJg	http://youtu.be/gILekrewktw	

Community

Over 700 people attended the Open House. The principal of the school welcomed the community of learners, then students and their parents were sent off on a scavenger hunt for videos highlighting unique aspects of their new school.

Animals were stationed in each house to represent the 4 “habitats”. The “Run Habitat” had a pony, the “Fly Habitat” was represented by a Macaw, the “Jump Habitat” presented poison dart frogs (under glass of course), and the “Swim Habitat” held an alligator!

Learning Environment

Odyssey was designed to bolster the educationally innovative pedagogy of the District. The school is built around the theme, "Bodies in Motion: The Animal Kingdom" and champions the importance of healthy, active lifestyles while helping students understand their place in nature. It is a **Zero Energy Facility** that is the greenest, most energy-efficient public school in the State. Odyssey is on-track to earn a LEED Gold Certification.

Utterly unique in its design, the school accommodates any learning modality the teachers wish to implement.

Portals into Habitats

There are four Small Learning Communities at Odyssey – groups of classrooms called "habitats" – red, orange, blue and green. Each habitat corresponds to one of the thematic motions of the school (Run, Jump, Swim, and Fly), and includes 8 classrooms, a large central collaboration area, teacher prep and storage areas, and toilet room facilities.

Learning Environment

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. Furniture selected directly fosters a project based curriculum. All pieces include casters, making room reconfiguration fast and easy. The rectangular tables incorporate a white board top for student work, and can be flipped up and rolled out of the way during activities that need more open space. Round tables are height adjustable allowing students to stand and work, and the seating is varied, including wobble stools, chairs, and soft ottomen in each classroom.

Physical Environment

The building itself is an educational tool; the walls and hallways of the building are peppered with inspirational quotes, encouraging students and patrons alike to do their best and make a difference in the world. Portals that open into the habitats include intriguing signage regarding the animals that run, jump, swim and fly. Images of athletic activities serve to further inspire students.

Photovoltaic Panels Shade South-facing Windows

Odyssey will be the first LEED Gold public school in the state as well as being the first **Zero Energy school**. The Zero Energy goal was one result of the intense planning process.

The mechanical system is both simple and complex. It includes components that many school districts would be familiar with; geothermal heating, two stage evaporative cooling, water-to-water heat pumps, thermal displacement ventilation, and a gas boiler. The complexity comes from the way the system is configured and the automation utilized to make the system run optimally. The system is designed to use the smallest amount of electrical energy possible, (with a measured EUI of 17.4), which is fully offset by the 1200 photovoltaic panels on the roof. The lighting in the building is 100% LED, and utilizes daylight harvesting, and a user friendly controls system.

Portal entering the “Run Habitat”

Inside the “Swim Habitat”

Odyssey has an energy dashboard, (networked for use by teachers in the classroom), for children to learn about their school’s energy use. Students see in real time how much energy the building is using - and producing! They can also see the school’s water use and read about the green features of their school. Teachers at Odyssey tell us that the students check the dashboard every day at lunch time! You can also check it out using the link below.

http://buildingdashboard.com/clients/davis/odyssey/

Branding

Building signage highlights the sustainable features of the building, water conservation, improved indoor air quality, high efficiency envelope, innovative mechanical system, alternate transportation accommodations, and recycling (both construction and for the occupants) for teachers and students. Branding of the building fosters a strong connection to the animal kingdom and nature, encouraging a life-long commitment to the natural world.

Student Panel & Blue Sky Meetings

Planning Process

After fourteen years of building the same award winning prototype elementary, the School District issued a challenge to the design team; to reimagine the prototype from the ground up to be more educationally and aesthetically stimulating while incorporating current and future educational pedagogies. The district also wanted this to be a Zero Energy school, incorporating concepts of sustainability into all aspects of the design to foster the use of the building as a teaching tool.

Furniture and Planning Meetings

Planning Process

The program and early schematic design took a full two years to work through with the design committee and the design team. Teachers from across the district, administrators, students and members of the community were involved in focused charrettes over that time to craft the learning spaces, parti and branding concepts.

The ideas of breaking apart the dining room and multi-purpose rooms to be more integral to the building, the large collaboration spaces and connection of the teaching spaces to the collaboration area were all born in this planning process. The process was deliberate and thoughtful – never rushed – which is evident in the quality of the spaces, the teachers' use of the building and the integration of the branding throughout the building and the site.

The overall goals of Odyssey Elementary were developed over a period of 24 months, utilizing a series of meetings and involving a wide variety of stakeholders interested in exploring ideas for a completely new kind of elementary school. The results of numerous surveys were also important in the goal development.

Vision & Goals:

1. Project-based learning will be accommodated through the use of large flexible daylit classroom spaces adjoining large central collaboration spaces.
2. The facility will be designed to allow for easy and readily accessible technology – all occupants will utilize personal computing devices. No computer labs will be included.
3. The school will be designed as a "destination". Branding to attract young people, create interest and generate curiosity in our students will be a central design goal, integral to the architecture.
4. Furniture selection will be a part of the building design. Furnishings must be comfortable, inviting, and selected to encourage learning. Furniture must be easily moveable and reconfigurable in order to allow for multiple varied activities.
5. Outdoor learning will be accommodated through the design of the outdoor space, specifically; outdoor courtyard(s) must be designed to facilitate learning activities.
6. The school must be beautiful, durable, and energy efficient. Zero Energy Usage and LEED Gold certification are desirable.
7. The building will engage the community, accommodate after school events, and serve as a hub for the neighborhood.

Floor plan Level 1

Building spaces are multi-use for efficiency. The dining area is integrated into the circulation. Large glass doors between the dining area and the multipurpose room lift for use as an auditorium. There are no computer labs because technology is integrated into all learning spaces.

main level

1	administration
2	multi-purpose
3	kitchen
4	dining
5	mechanical
6	teacher prep
7	classroom
8	collaboration area
9	work room
10	media center

Floor plan Level 2

Multiple teachers can work together across the collaboration space by opening multiple doors. Each pair of classrooms is connected by a door as well. The floor plan's dedication to parity provides the flexibility to reconfigure grade levels, allowing for far easier cross-grade collaboration than possible a typical school.

upper level

5	mechanical
6	teacher prep
7	classroom
8	collaboration area
9	work room
10	media center

Exhibition of School Planning and Architecture Project Data

Submitting Firm :	VCBO Architecture, LLC
Project Role	Design Architect, Educational Planner
Project Contact	Jeanne Jackson, FAIA, LEED AP
Title	Principal-in-Charge
Address	524 South 600 East
City, State or Province, Country	Salt Lake City, UT United States
Phone	801-558-7440

Construction Firm:	Hughes General Contractors
Project Role	General Contractor
Project Contact	Jed Haacke
Title	Project Manager
Address	900 N. Redwood Road
City, State or Province, Country	North Salt Lake, UT United States
Phone	801-292-0530

Exhibition of School Planning and Architecture Project Details

Project Name	Odyssey Elementary School
City	Woods Cross
State	Utah
District Name	Davis School District
Supt/President	Dr. W. Bryan Bowles
Occupancy Date	August 2014
Grades Housed	Pre-K - 6
Capacity(Students)	900 students
Site Size (acres)	12 acres
Gross Area (sq. ft.)	84,760 sf
Per Occupant(pupil)	94 sf/student
gross/net please indicate	.35
Design and Build?	No
If yes, Total Cost:	
Includes:	
If no,	
Site Development:	$ 4,788,100
Building Construction:	$13, 021,600
Fixed Equipment:	$ 1,800,000
Other:	
Total:	$ 19,609,700

Supplemental Information – Actual Energy Consumption & Production

The School Board didn't make the decision to fund the PV array until the project was nearing completion. Also, it took a number of months to reach agreement with the local electrical utility to activate the array. The table below describes the actual energy usage of Odyssey for the first 12 months, prior to the start of energy harvesting, in October 2015. Please go to http://buildingdashboard.com/clients/davis/odyssey/ r current energy production, daily and monthly. **Note that the array is producing over double the energy that was expected.**

Review of Odyssey Elem Energy 12 months

October 2014 through September 2015

	Building Square Feet	Site EUI Kbtu/sq.ft.	Metric Tons CO2 Emmissions/1000 sq.ft.	ECI Cost/sq.ft. *	Metric Tons CO2 Emmissions	Metric Tons CO2 Emmissions after PV offset
Energy Model Elem 60 Baseline (code bldg)	86,898	43.8	6.05	$0.77	526	526
Energy Model: Elem 60 Design Building	86,898	21.8	3.87	$0.48	336	17
Odyssey actual usage	84,758	17.1	2.88	$0.36	244	-75

**** Costs are before PV and based on Utah Average Cost per Energy Information Administration (EIA)***

Supplemental Information – Post Occupancy

Throughout the process of this project, the design team has utilized a series of surveys to gather input. In mid March 2015, a Post Occupancy survey was launched on Survey Monkey. The survey tailors questions to students 3rd grade and above, staff, faculty and parents. 271 people filled out the online survey, (68% students. 12% Faculty, 2.5% Staff, and 17.5% parents). Selected Data is bulleted on the supplemental slides that follow.

Post Occupancy – Selected Data

In response to the question "In your opinion, what factors are primarily responsible for the success of your child's academic performance and learning?" **46.67% of parents responded that the Classroom and Building design played a role**.

Over 83% of responding faculty and students agreed that the layout of the school and classrooms makes it **easy to work in groups**, while over 86% felt that the layout of the school and classroom **makes learning more fun.**

More than 82% of respondents were satisfied with the outdoor play area and the courtyard.

65% of the responders felt that the "habitats" **help students feel part of the school community.**

82% of responding faculty agreed that the layout of the school and classroom **encourages student-teacher interaction.**

Post Occupancy – Selected Data

61% of all classrooms open the large roll-up door weekly or oftener.

85% of respondents are satisfied with the **amount of natural daylight** in their classroom.

Over 78% of teachers who responded were satisfied or very satisfied with the **design of the building in helping them to provide quality learning experiences** for their students.

Almost 88% of responding students and faculty agree that the **classroom furniture is easy to move**, and over 56% change the classroom layout and furniture locations weekly or oftener.

Post Occupancy – Selected Data

86% of respondents found the **"habitat" displays well designed**, organized, and interesting (i.e., quotes, facts, animals, actions, colors, etc.).

Over 82% of those responding agreed that it is **easy to find your way around school** (i.e., such as finding a room you have never been to before).

Over 87% of all those responding to the survey were satisfied with the building overall.