

2015 Exhibition of School Planning and Architecture

# Northglenn High School Pool to STEM Conversion

Category: Renovation

Adams 12 Five Star Schools

Northglenn, Colorado

# OVERALL EXTERIOR



**BEFORE**

## Project Overview

Northglenn High School is a large 1960's-era comprehensive high school that serves 1,900 students and is located in a northern suburb of Denver, CO. The District provides aquatics programs for its students and for decades the swimming pool at Northglenn High School was the primary facility for these programs. Possessing the District swimming pool was also a great source of pride for the school.



# SITE PLAN

When the District constructed a new comprehensive high school, a new aquatic center was incorporated into the new facility, and the aging pool at Northglenn High School became obsolete. The infrastructure for the pool had deteriorated over the years and the cost of operating and maintaining the antiquated equipment was high, so the District decided the facility was a resource liability and should be decommissioned.

The principal of the school expressed a need for more educational space, and the District realized that the pool vessel and the building envelope were in relatively good condition. The District began to think about re-purposing the existing Natatorium and Change House space into new educational space.



**POOL AND  
CHANGE HOUSE IN  
RELATION TO REST  
OF CAMPUS**

# INSPIRATIONAL GRAPHICS

## Planning Process:

The Design Team interacted primarily with District-level educational personnel, District-level facilities personnel, and school-level administration and facilities personnel. Initially, the Design Team met with this Design Advisory Group at the school regularly and explored options to convert the existing Natatorium into multi-purpose flex space for the school. The process was iterative where the group identified space deficiencies in the existing school and brainstormed educational possibilities, and the Design Team returned with conceptual space programs and conceptual plans until the group was comfortable that this space would be put to its best use.

At this time the District had a separate committee working to establish a District STEM program. The Northglenn High School project and the District's emerging STEM program were soon put together, and the project took an exciting new direction. Not only would this found space be utilized for the District's new STEM program, Northglenn High School would continue to be home to a unique District-wide program, which meant the space would continue to serve as a source of school pride.



# FLEX STUDIOS

## Planning Process:

The Design Advisory Group began anew and rallied around the District's emerging STEM program. The District would focus on three STEM pathways: Information Technology, Bioscience, and Engineering. In contrast with traditional District programs, the STEM program would be project-based and require spaces for direct instruction, collaboration, constructing, and presentation. Although attached to the school, as a District-wide facility it would have its own entrance and small administrative suite to serve students coming from other schools.

The Owner was thoroughly engaged in the entire process and the Design Team personnel followed it from inception through post-occupancy. This engagement came in the form of regular communication via face-to-face meetings, site visits, and e-mail correspondence. The continuity of Design Advisory Group participants and the engagement of the Owner in the process led to a well-coordinated outcome for the students and staff assigned to the new space.



# COLLABORATIVE SPACE

## Learning Environment:

The District's vision was to create a program that would more fully engage the students through hands-on learning and through real-world application by partnership with practicing professionals in the community.

The Design Team worked with the Design Advisory Group to establish a space program that included large STEM Studios for each desired pathway, a shared fabrication space, a shared large presentation space, a shared small presentation space, and shared breakout spaces. The intent was to provide generous spaces for direct instruction and lab-based exploration, and to supplement those spaces with spaces that support small and large breakout group collaboration, hands-on investigation and application, and presentation of findings to peers. Having access to a collection of different spaces affords instructors the opportunity to direct their students in a variety of learning settings.



# WORK STUDIOS AND RECEPTION

## Learning Environment:

The spaces are organized such that the large Studios are around the periphery and the presentation spaces are in the center, across the circulation path from one another. The large presentation space may flex to open to the circulation space on one side, and the small presentation space may flex to open to the circulation space from the other side, or both may be opened simultaneously to create a gallery atmosphere for special events, such as an exhibition of student work.

A reception area, workroom, kitchenette, and large and small conference rooms were provided to support instructors and visiting outside professionals as well as after-hours use of the presentation spaces. In circulation areas, small informal spaces were created as well as spaces for storage and display of student work. A large new restroom group was also provided.



# CONSTRUCTION IMAGES

## Physical Environment:

In the end, the existing Natatorium was a perfect fit for the educational spaces and the Change House was a perfect fit for the administrative, instructor, and outside professional support spaces. The pool vessel itself was structurally sound. Once the pool was drained, the vessel was filled with blocks of foam and a new concrete slab was poured over the top. The existing high volume Natatorium was partitioned into the primary educational spaces. The existing Change House was gutted and partitioned into support spaces.

The existing Natatorium was equipped with a series of overhead doors around its perimeter intended to open the pool to the exterior in the summertime. These overhead doors were removed and the openings utilized for windows into the new STEM Studios.

A displacement ventilation mechanical system with radiant heat ceiling panels was employed to take advantage of the high volume Natatorium space for high indoor air quality and occupant comfort. The most sustainable act of the project was to retain the existing space, decommission the pool, but keep the space in the service of the District's evolving educational mission.



**POOL BEFORE**



**POURING THE CONCRETE**



**FILLING POOL WITH FOAM**

# ENERGETIC INTERIORS

## Physical Environment:

The project's primary interior finishes included the use of energetic colors to highlight interior architectural forms. Building elements were exposed to reveal the making of the building including the transparent electrical panel, columns labeled with structural load, etc.

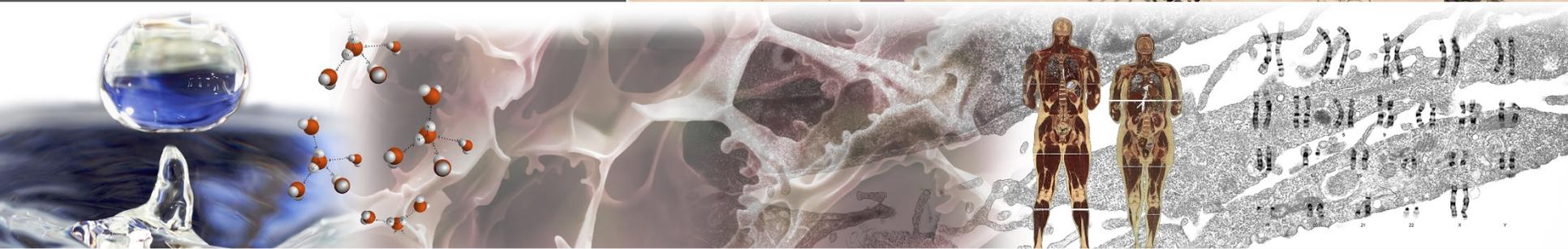
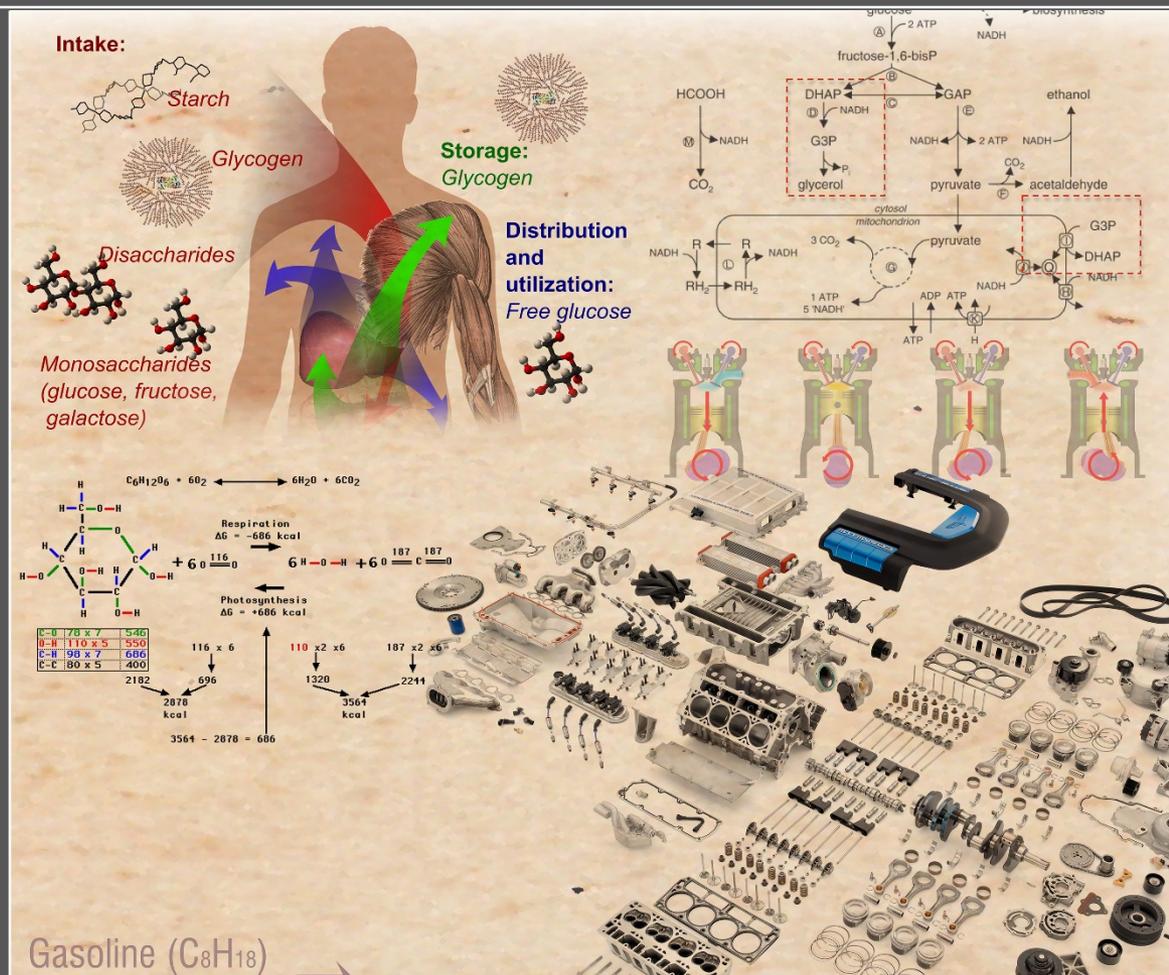
For security, the STEM space has a single point of entry from the exterior for receiving students from other schools and/or after-hours visitors. A simple courtyard was created as a calling card for the STEM program. This entrance is monitored by a small reception area staffed when the entrance is open. The STEM space connects to the primary school building via a short hallway. This entrance may also be monitored from the reception area and locked for after-hours use of the STEM space by outside groups.



# INTERIOR GRAPHICS

## Community Involvement:

The District is predominantly Hispanic, and it was important to the Design Advisory Group to acknowledge that demographic within the design. A series of STEM-themed murals and signage were incorporated into the project and graphically alternates between English and Spanish in the "super graphic" lettering. The murals also incorporate scientists and engineers of Hispanic descent within the murals.



# ARCHITECTURAL "FINS"

## Community Involvement:

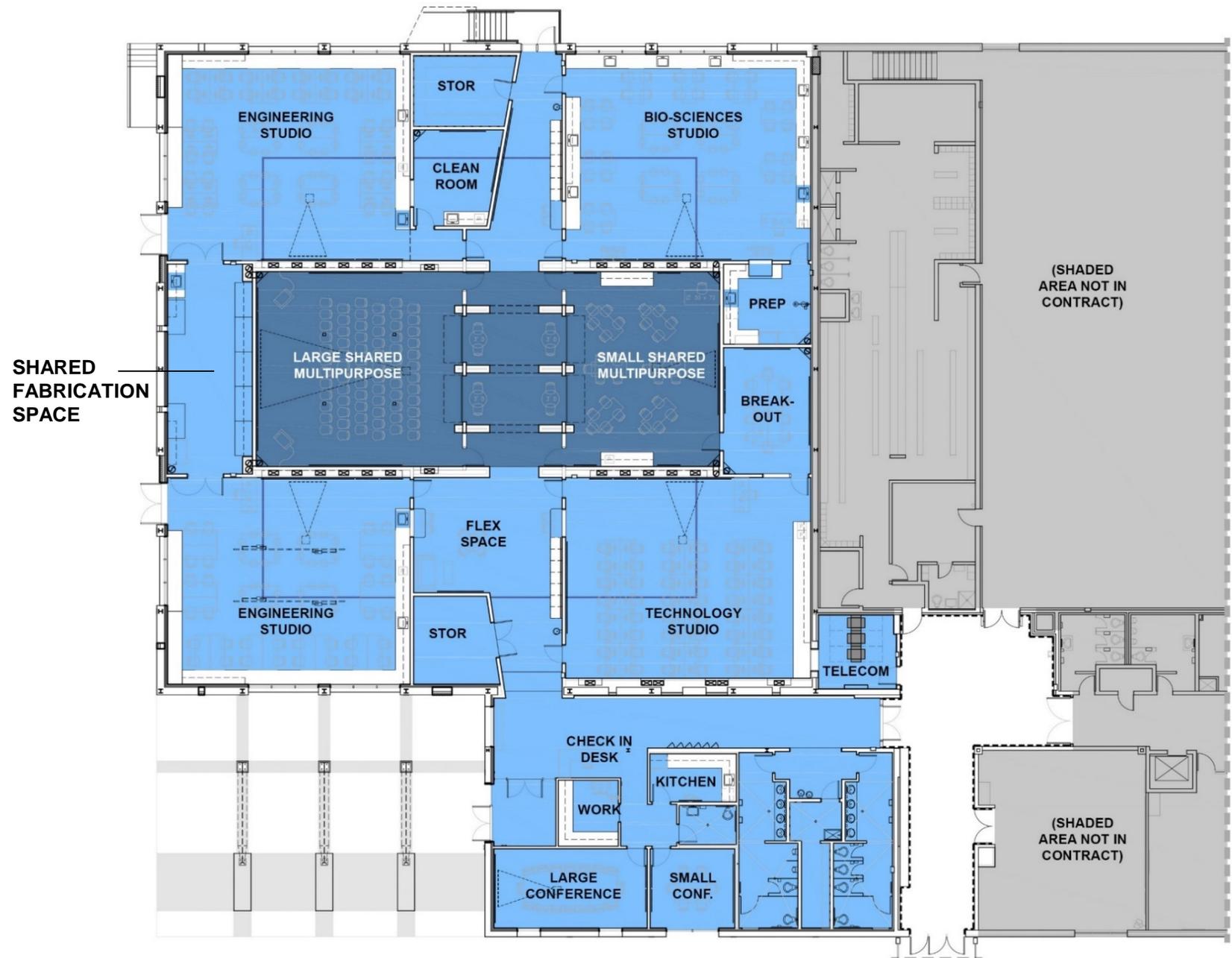
Architectural "fin" elements were used in the entry court and in the heart of the renewed space to create visual interest, a sense of identity, and to tie together the interior and exterior of the project. A wall features firms in the community with which the school is partnered to provide educational opportunities for the students.

## Summary:

The Northglenn High School Pool to STEM Program Conversion is a small gem of a project inserted into an existing comprehensive high school. It is a source of new pride in an unremarkable aging building that signals a new direction for the District toward creating a more engaging educational experience for students. The Owner's clear vision for their new program and their engagement in the design process, coupled with the Design Team's creative response and the school's enlistment of the professional community in the educational process created a great outcome for this modestly funded project.



# FLOOR PLAN



# Exhibition of School Planning and Architecture Project Data

Submitting Firm :	RB+B Architects, Inc.
Project Role	Architect
Project Contact	Lacey Reckelhoff
Title	Director of Marketing
Address	315 E. Mountain Ave., Suite 100
City, State or Province, Country	Fort Collins, CO, USA
Phone	970-484-0117

Joint Partner Firm:	n/a
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	n/a
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Construction Firm:	FCI Constructors
Project Role	General Contractor
Project Contact	Rob Price
Title	Project Manager
Address	4001 N. Valley Dr.
City, State or Province, Country	Longmont, CO, USA
Phone	970-535-4725

# Exhibition of School Planning and Architecture Project Details

<b>Project Name</b>	Northglenn High School Pool to STEM Conversion
<b>City</b>	Northglenn
<b>State</b>	Colorado
<b>District Name</b>	Adams 12 Five Star Schools
<b>Supt/President</b>	Christopher E. Gdowski, Superintendent
<b>Occupancy Date</b>	November 2012
<b>Grades Housed</b>	9-12 (STEM Program)
<b>Capacity(Students)</b>	1,900 (total school), 192 students in the STEM program
<b>Site Size (acres)</b>	n/a
<b>Gross Area (sq. ft.)</b>	16,014 sf
<b>Per Occupant(pupil)</b>	83 sf/occupant
<b>gross/net please indicate</b>	gross
<b>Design and Build?</b>	yes
<b>If yes, Total Cost:</b>	Construction Cost: \$2,685,750
<b>Includes:</b>	Building exclusive of land, landscaping, furniture and professional fees.
<b>If no,</b>	
<b>Site Development:</b>	N/A
<b>Building Construction:</b>	\$2,685,750
<b>Fixed Equipment:</b>	\$175,000
<b>Other:</b>	
<b>Total:</b>	\$2,860,750