

UPPER MERION AREA HIGH SCHOOL

Upper Merion Area School District
King of Prussia, Pennsylvania



2020
LESOLUTIONS AWARDS
SUBMISSION



Student commons.

01 EXECUTIVE SUMMARY

PROJECT GOALS

Following an extensive community-based master planning process and the subsequent successful design and construction of two new elementary school projects, Upper Merion Area School District (UMASD) began the process of creating a flagship facility to house the upper secondary programs for the District. A thorough planning and design process was implemented to include multiple user meetings and tours of state-of-the-art facilities throughout the United States.

The intent behind the facility is to provide career and higher education level spaces for the students of Upper Merion Area High School (UMAHS) to engage in the 21st century learning activities of research, development and presentation. Multiple hi-tech industry work spaces contemporary higher education spaces were studied in the development process of this unique facility.

The proposed 345,000 SF facility connects to the existing middle school facility through the athletic facilities to provide all students a full secondary learning campus. The resulting facility will provide enriching opportunities for students from the traditional sixth grade through twelfth grade ages. The facility will be located in King of Prussia, Pennsylvania. King of Prussia is about 25 miles northwest from Philadelphia and its location intersects major financial and pharmaceutical hubs, as well as the second largest retail complex in the United States. A significant portion of the Mid-Atlantic population flow through this area.

PROJECT OUTCOMES

A true “student commons” is the heart of the facility, designed as an “all-day” area for multiple activities. The student commons is a two-story atrium space with learning resources on the second level enhancing the research- and project-based components mixed with dining opportunities on the first floor. After hours, this space supports pre- and post- activity functions for the athletic and performing arts complexes. A full competition gymnasium and competition swimming venue will be the connector to the middle school. The performing arts complex is a 650 seat theater with balcony and all supporting spaces.



Student commons.



Classroom wing exterior.

02 SCOPE OF WORK + BUDGET

UPPER MERION AREA HIGH SCHOOL

The scope of work generally consists of approximately 345,000 SF of new construction on the existing UMAHS site. The existing high school will be maintained throughout construction and will be demolished upon completion of the new facility. The middle school pool will be repurposed and infilled to convert the space for 6,000 SF multi-purpose athletic room.

The proposed new Upper Merion Area High School will be built on the existing high school site that is also shared with the Middle School and District Administration building. The new high school will have a dedicated bus loop for buses and vans for drop-off and a designated chevron bus parking area for afternoon pickup. A secondary parent drop-off area around the back of the school provides adequate queuing length and separation of bus and vehicular traffic flow. A total of approximately 600 parking spaces has been provided on the high school site. Overflow parking for additional vehicles can be accommodated at the bus-loading zone for after school event parking and activities. The athletic facilities include two new artificial turf multi-purpose fields, baseball, softball, track and field events and one existing artificial turf stadium. An underground stream bisects the site with the building bridging over it and included as an educational design feature.

SIZE
345,000 SF
CONSTRUCTION VALUE
\$119 million
COMPLETION DATE
2022 anticipated



SITE PLAN



UPPER MERION AREA HIGH SCHOOL
PROPOSED FACILITY



UPPER MERION AREA MIDDLE SCHOOL



PROPOSED ATHLETIC FACILITIES



03 SCHOOL + COMMUNITY ENGAGEMENT

Upper Merion Township

THE UPPER MERION TOWNSHIP COMMUNITY

UMAHS is located in Upper Merion Township in King of Prussia, Pennsylvania. The Township is roughly 17 square miles and is home to over 28,000 residents. It has developed into one of the most important activity centers in the region. It is also home to the King of Prussia Mall, the nation's largest shopping mall, and Valley Forge National Historical Park. The two attract millions of visitors each year.

UMASD has evolved to provide education to seven schools today. The District is currently configured with five elementary schools, one middle school and one high school. UMASD provides education for two townships and one borough; Upper Merion Township, Bridgeport Township and West Conshohocken Borough.

UMASD is highly regarded for their public schools based on a variety of measures, ranging from academic performance to overall equity. The District strives to ignite a challenging, diverse and caring learning environment focused on serving children and the community.

SIZE

17 sq. miles

POPULATION

28,000 residents

LOCATION

King of Prussia, Pennsylvania



STAKEHOLDERS IN THE PROJECT

A Design Committee was established at the onset of the project comprised of school district and building administrators and the design team.

The committee held planning and design workshops with project stakeholders including students, staff, parents, local community representatives and officials to create a facility design that adequately met the District's needs. Planning was driven through how the District wished to educate and then creating a facility design that best responded to the desired educational program and site. Multiple meetings with the school board members and the public took place to work with the team to further concepts based on community goals.



PROJECT CHALLENGES

The first design challenge was to determine whether or not to renovate and add onto the existing high school or to build new. New construction options considered building on the current high school site, which is shared by the middle school, district administration building and stadium, or at a new site. After reviewing multiple options, the recommendation was supported by the School Board to build new on the current site which was the most cost-effective solution that would achieve the targeted design goals. In lieu of a stand-alone building, the design to build the new facility adjacent to the existing middle school with the connection to support shared secondary athletic facilities set the stage to further develop the building design.

Locating the school on the 59-acre site posed challenges and opportunities. The site is bisected by an underground stream which is spanned by the proposed building locating the community spaces on one side of the stream and the 3-story academic wing on the other side. Instead of burying the underground stream, the stream and its outfall were exposed with a new outdoor amphitheater and teaching area integrated into the design. The area will be a resource for science-based learning activities directly adjacent to the classroom instruction. The remainder of site will be developed for tiered athletic fields, parking and circulation.



Amphitheater.



Gymnasium.

AVAILABLE ASSETS

The new high school will feature assets for both the students and community. The main gymnasium will have three courts with an upper indoor walking and running track. The district natatorium will be handicapped accessible with a diving well. A fitness and wellness room will have appropriate exercise equipment and the weight room will serve as the athletic program training center. The state-of-the-art auditorium will serve as an intimate setting for a variety of performances.



Performing arts complex.



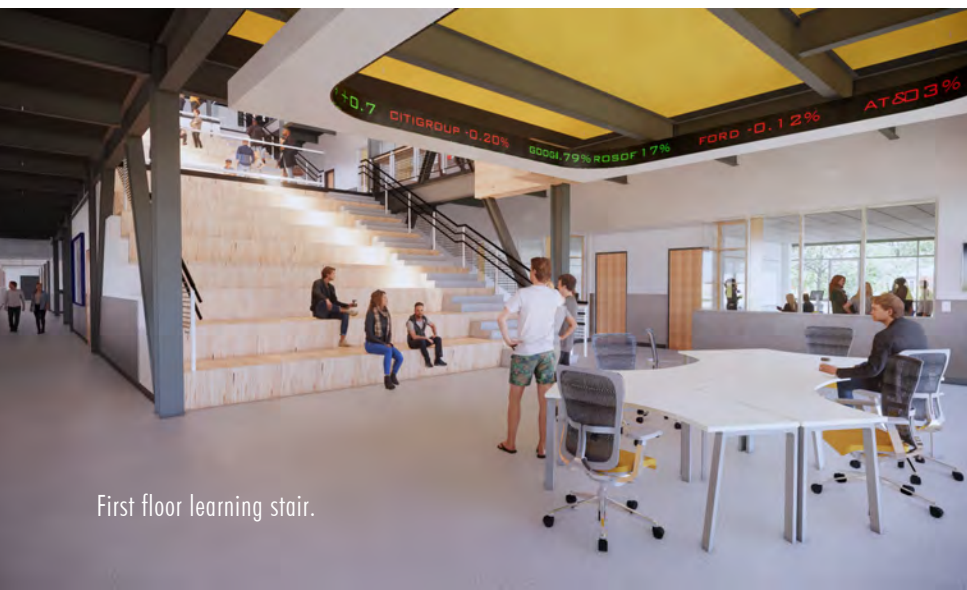
Career center.



Central to the school will be the student services area to support the student body. Located between the Student Commons and the 3-story academic wing are the Career and College Counseling Center and the Technology/IT support center. The Student Commons at the main entrance to the school offers dining options and a community space for peer-to-peer and staff-to-peer socialization opportunities.



Second floor learning stair.



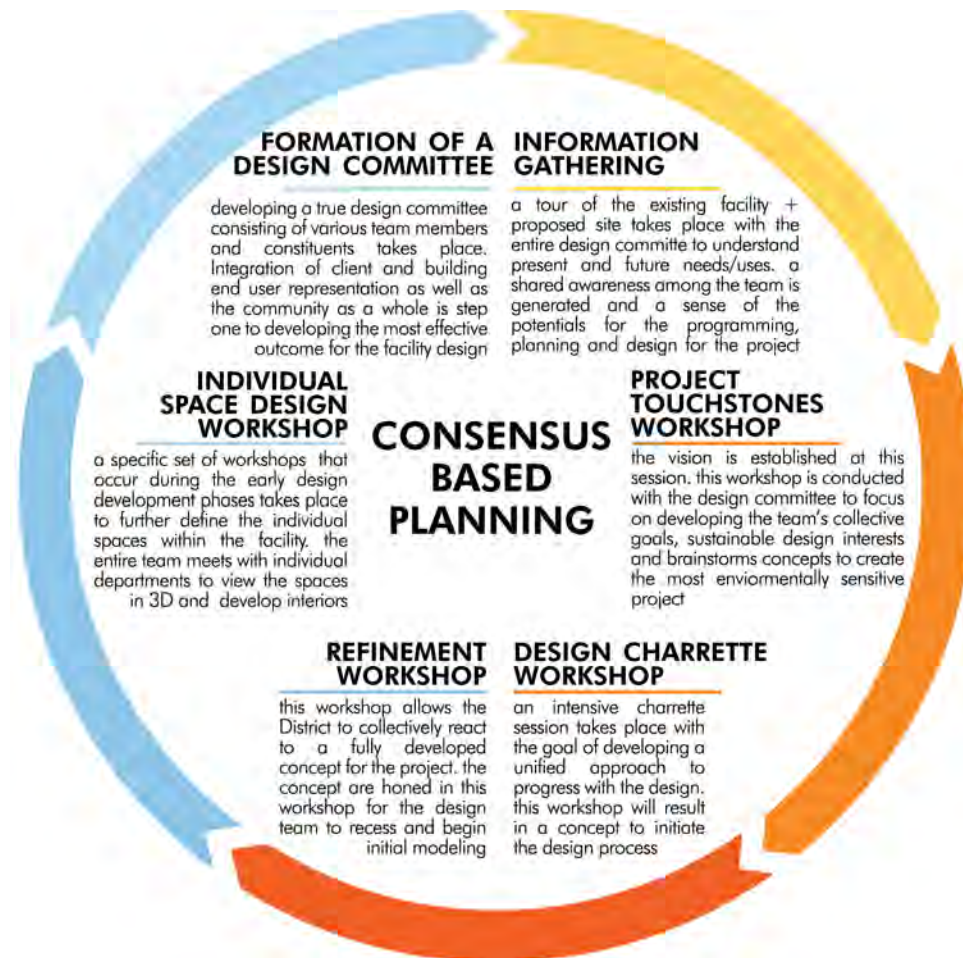
First floor learning stair.

SPACES THAT SUPPORT VARIOUS LEARNING + TEACHING STYLES

A three-story academic wing supports the core academic programs with a STE(A)M based center, multiple project and team-based spaces and a three-story learning stair. The learning stair connects all core programs vertically to enhance the cross-pollination of learning activities. Transparency is a key aspect of the facility's design and is utilized to promote the visual connection between each of the learning activities.

VALUE OF PROCESS + PROJECT TO THE COMMUNITY

The planning process allowed for the educational community to have tremendous input into the concept and the final design. By utilizing a consensus based planning approach, ideas provided by the many constituents can be found in the overall plan for the facility. The educational vision is clearly supported by the many unique aspects of this facility. Public meetings were held where interested planning partners met on multiple occasions to work with the team to further the project and to encourage the use of sustainable techniques.



Hallway corridor.



04 EDUCATIONAL ENVIRONMENT

Classroom.

EDUCATIONAL VISION + GOAL

The most important change was the motivation to move away from a completely lecture-based learning process towards project- and portfolio-based learning. The goal of project-based learning is to bring the multitude of students not served well by the lecture format into the realm of application of data rather than regurgitation of data. The District and building team embraced this theme because it brings a variety of other concepts into consideration. The intent behind the overall design of the facility is to provide career and higher education level spaces for the students to engage in non traditional learning environments and learning activities of; researching, developing and presenting.



Library commons.



First floor learning stair/collaboration space.



Science commons.



Library commons.

HOW THE ENVIRONMENT SUPPORTS THE CURRICULUM

UMAHS provides a one-to-one environment, providing laptops to students in all grades. There is a strong focus on 21st century skills development and integration of technology into teaching and learning. The proposed facility design includes technology distribution and support spaces located between the commons space and the academic area to integrate the correlation for teaching and learning. Additionally, the high school offers virtual coursework and service learning for credit. A three-story academic wing supports the core academic programs with a STE(A)M based center, multiple project and team-based spaces and a three-story learning supports the school's STE(A)M curriculum.

SPACES THAT SUPPORT VARIOUS LEARNING + TEACHING STYLES

Every space in the facility is essentially a learning space. Learning studios, small group instruction areas and large group instruction areas provide spaces for individual, small-, medium- and large-group learning and teaching styles. Spaces traditionally used as corridors or hallways are designed to function as additional learning spaces, and even stairs are intended to be used as presentation steps and/or to provide a dynamic team collaboration area.

The proposed facility successfully delivers the District's intent to incorporate the "Four C's" (Critical Thinking, Creativity, Communication and Collaboration) in the overall design. The Four C's provide the learner with spaces for instruction, research, development of projects (making) and presentation of ideas.

The skills of collaboration and teamwork are vital to best preparing our learners for a world that necessitates experience in working together to solve problems, bringing out the best in one another to achieve a solution that's better than one could have achieved alone. Collaboration is key to furthering these attributes for a successful learning experience.

Creating memorable and meaningful learning experiences that encourage learners to communicate on numerous levels is paramount to success. Providing opportunities to connect their learning to real life scenarios builds engagement, energy and ultimately keen communication skills. Allowing learners to interact with others and contribute back to their communities instills a sense of respect and pride.

Creating spaces for students to think critically versus presenting sets of facts, allows them to engage, ask questions and become engaged in the world around them. When this happens, they help others think critically too.



FOUR C'S OF EDUCATION

Each space within the facility is designed to enhance students into ways of creating better communication and collaboration, creativity and critical thinking skills.

*team spaces for
CRITICAL THINKING*

*public lobbies/commons for
CREATIVITY*

*open areas for
COMMUNICATION*

*presentation spaces for
COLLABORATION*

ADAPTABILITY + FLEXIBILITY

A variety of instructional delivery methods are utilized including blended and online learning to personalize the process to engage all learners, tapping into their unique learning styles. The District and the building team were influenced by the notion of technology being of tremendous use in that it can be used to assess each learner's strengths, freeing up the teacher to do what he/she does best: guide the instruction. Learners are engaged, they take ownership of their learning and a life-long love of learning is instilled.

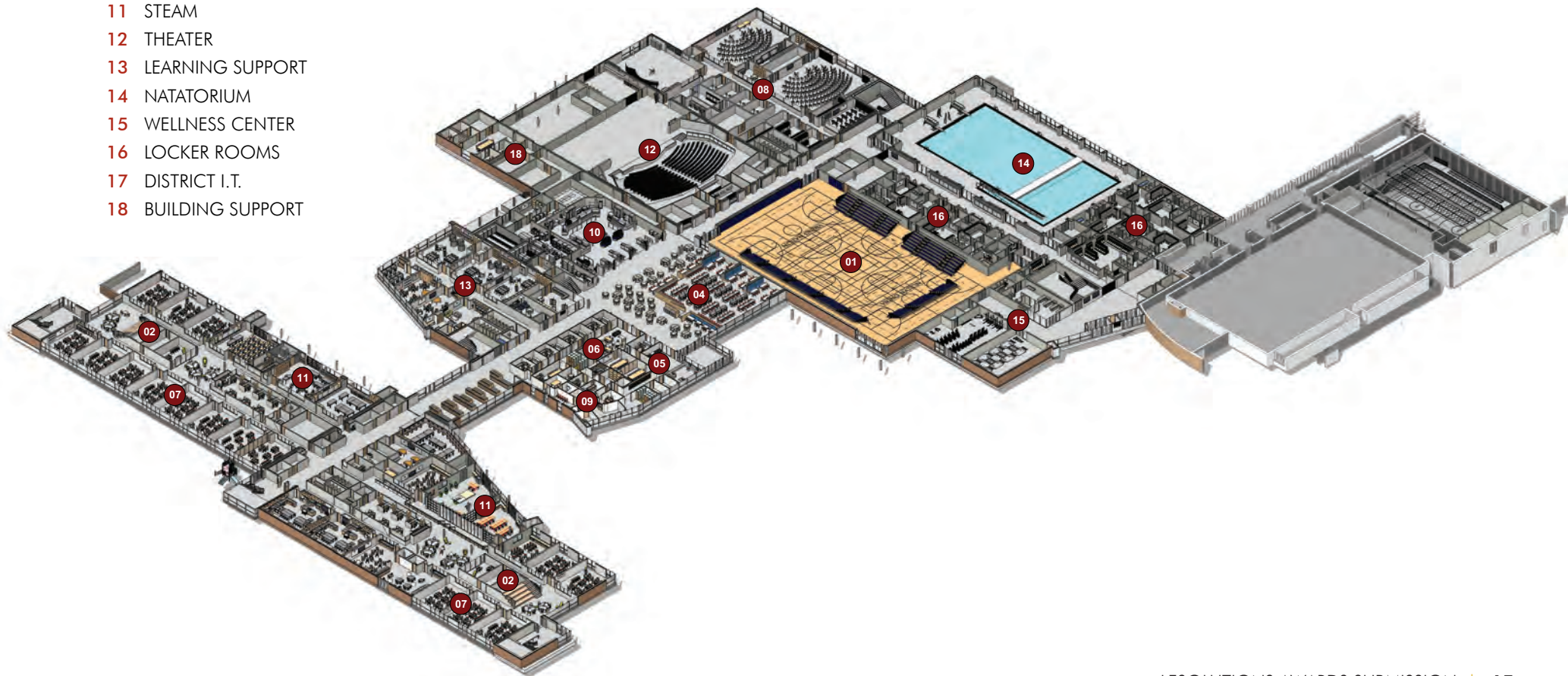
To accommodate the variety of instructional methods, our spaces must be agile allowing them to be shaped and reshaped to support the desired activities. We refer to this as "rapid reconfiguration." Particularly, as technology continues its rapid pace of change and our understanding of how each of us learns continues to evolve, this notion of flexibility and adaptability was key to ensuring that all physical spaces in this facility support learning.



Natatorium.

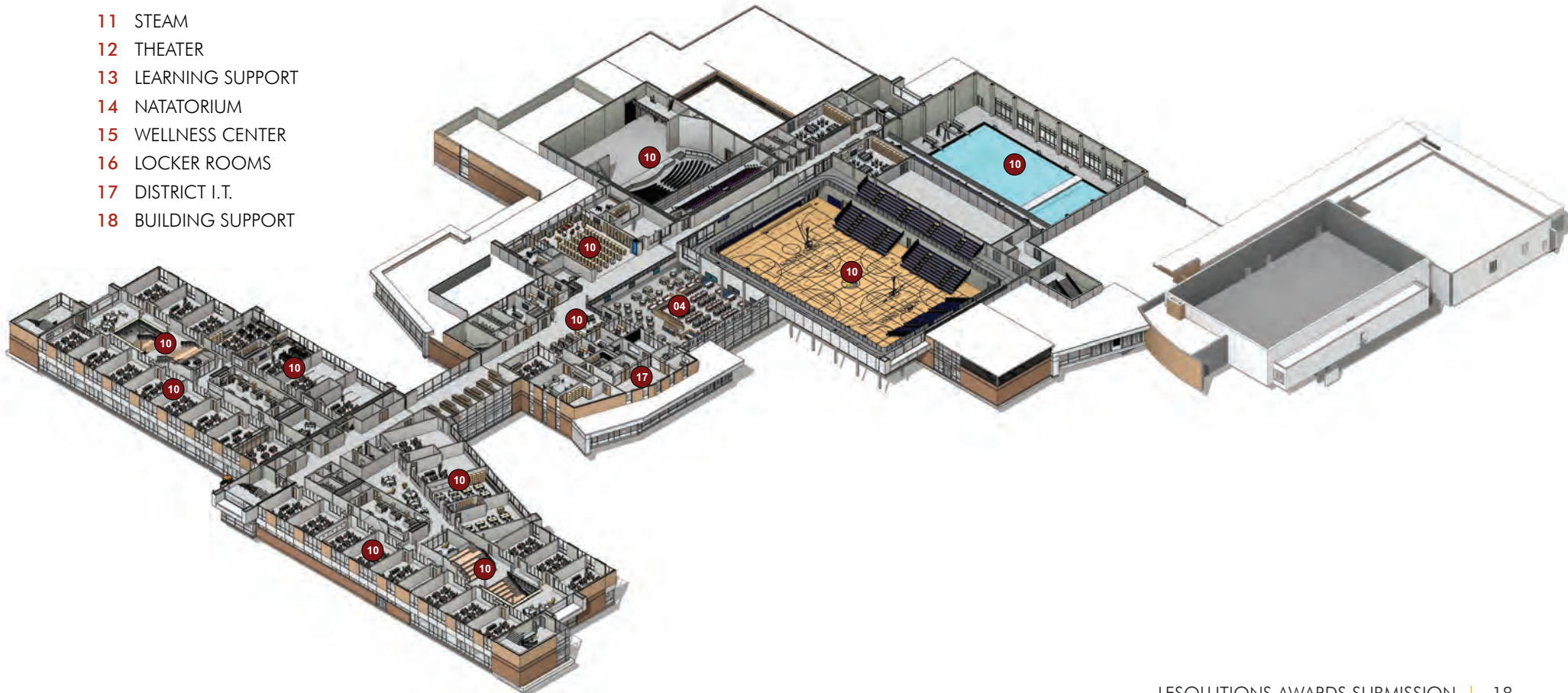
FIRST FLOOR PLAN

- 01 GYMNASIUM
- 02 LARGE GROUP INSTRUCTION
- 03 LIBRARY COMMONS
- 04 BUILDING COMMONS
- 05 ADMINISTRATION
- 06 GUIDANCE
- 07 LEARNING COMMUNITY
- 08 MUSIC
- 09 NURSE
- 10 KITCHEN
- 11 STEAM
- 12 THEATER
- 13 LEARNING SUPPORT
- 14 NATATORIUM
- 15 WELLNESS CENTER
- 16 LOCKER ROOMS
- 17 DISTRICT I.T.
- 18 BUILDING SUPPORT



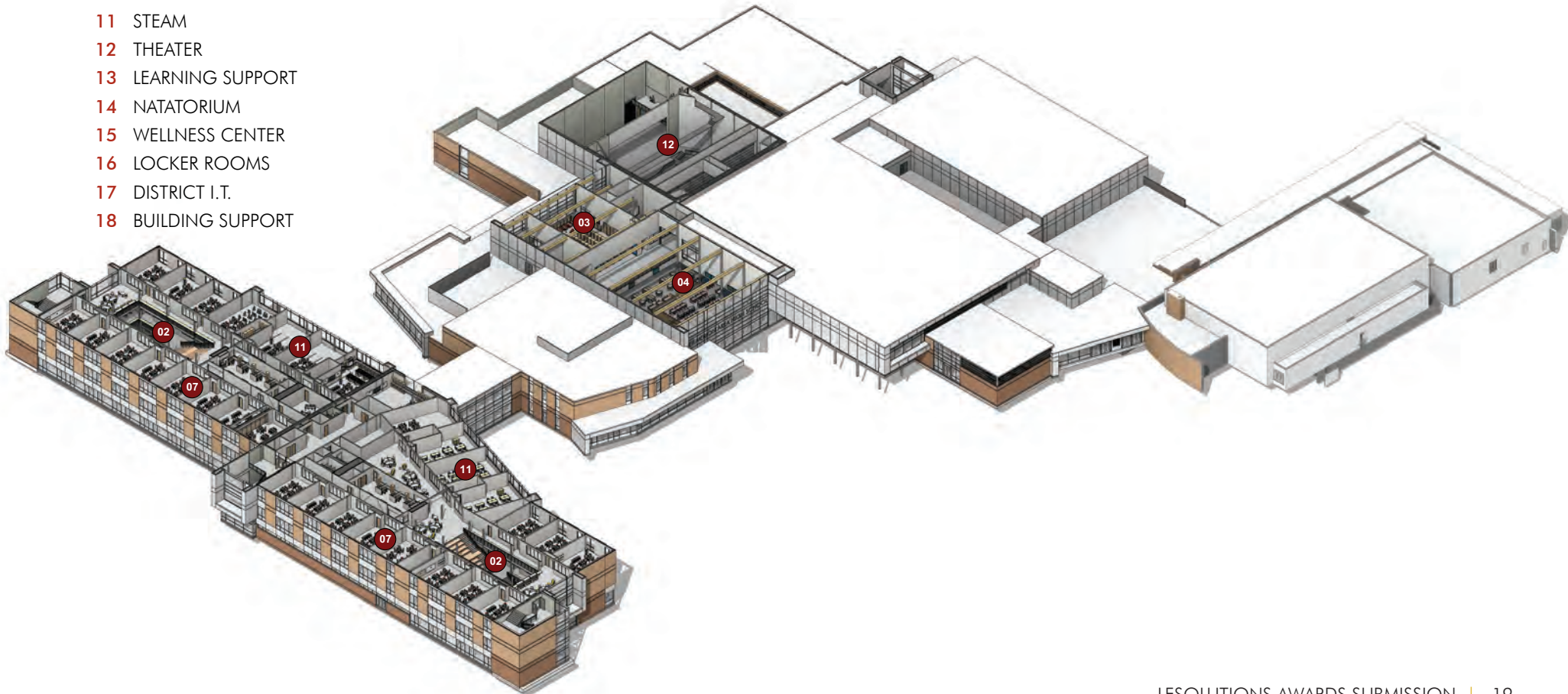
SECOND FLOOR PLAN

- 01 GYMNASIUM
- 02 LARGE GROUP INSTRUCTION
- 03 LIBRARY COMMONS
- 04 DINING
- 05 ADMINISTRATION
- 06 GUIDANCE
- 07 LEARNING COMMUNITY
- 08 MUSIC
- 09 NURSE
- 10 KITCHEN
- 11 STEAM
- 12 THEATER
- 13 LEARNING SUPPORT
- 14 NATATORIUM
- 15 WELLNESS CENTER
- 16 LOCKER ROOMS
- 17 DISTRICT I.T.
- 18 BUILDING SUPPORT



THIRD FLOOR PLAN

- 01 GYMNASIUM
- 02 LARGE GROUP INSTRUCTION
- 03 LIBRARY COMMONS
- 04 BUILDING COMMONS
- 05 ADMINISTRATION
- 06 GUIDANCE
- 07 LEARNING COMMUNITY
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- 17 DISTRICT I.T.
- 18 BUILDING SUPPORT





Student commons.

05 PHYSICAL ENVIRONMENT

PHYSICAL ATTRIBUTES

Student services and technology distribution and support spaces are located between the commons space and the academic area. A three-story academic wing supports the core academic programs with a STE(A)M based center, multiple project and team-based spaces and a three-story learning stair.

The learning stair connects all core programs vertically to enhance the cross-pollination of learning activities. Transparency is a key aspect of the facility's design and is utilized to promote the visual connection between each of the learning activities.



Performing arts theatre.



Learning stair.

FITTING IN WITH THE COMMUNITY

UMAHS is in close proximity to educational facilities and communal resources in the surrounding community. This new facility will be physically connected to UMASD Middle School in a secondary campus design. UMAHS is also within a one mile radius to UMASD's Caley Elementary School, Upper Merion Township Library and Upper Merion Community Center.

● CALEY ELEMENTARY SCHOOL

● UPPER MERION
COMMUNITY CENTER

● UPPER MERION AREA
MIDDLE SCHOOL

● UPPER MERION AREA
HIGH SCHOOL PROPOSED FACILITY

● CANDLEBROOK
ELEMENTARY SCHOOL

● UPPER MERION
TOWNSHIP LIBRARY

● UPPER MERION
TOWNSHIP PARK



HOW THE PROJECT INSPIRES + MOTIVATES

The variety of amenities and integration of technology throughout provides for a complete and flexible experience for the students. The furniture is adjustable, easily movable and is varied enough to truly support the fact that one size does not fit all. The building is a passive and active contributor, a teaching tool, to learning, through ample displays and explanations, along with spaces and elements that demonstrate full immersion into the process of learning.

Student commons.

06 RESULTS OF THE PROCESS + PROJECT

Construction of this facility just began in the Spring of 2020; therefore, the direct outcome data is not yet available. Judging by the process and the enthusiasm for the proposed educational structure, the team expects great results.





Second floor learning stair.

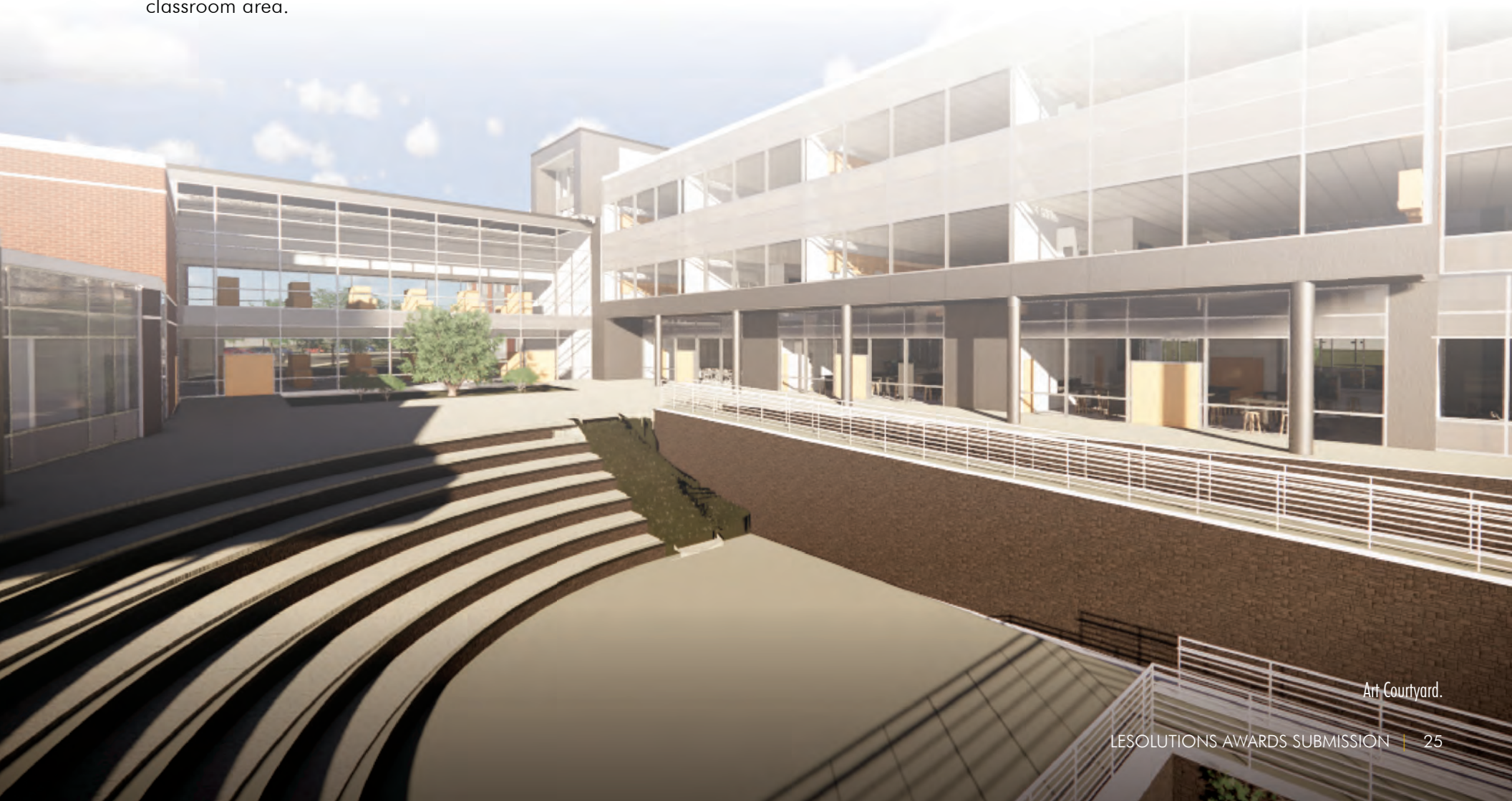
HOW THE PROJECT ACHIEVES COMMUNITY + SCHOOL DISTRICT GOALS

At key milestones throughout the design, community meetings were held to review the project scope and to receive input. The community overwhelmingly supported the design which was a reflection of the area corporate businesses' collaborative work environment. A rewarding attribute for facility poised to prepare students for career paths that would benefit the community at large.

UNINTENDED RESULTS + ACHIEVEMENTS

With the project not yet built, the expectations from unintended consequences is yet to be learned. There have been several site related challenges though, that have driven this to be a very unique project solution. Two consequences are as follows:

- 01 The underground stream was a challenge that grew into an opportunity. The stream required that the design team bifurcate the building to bridge that underground structure. Further, the Department of Environmental Protection strongly believes that previously captured waterways in the state be revealed where possible. The team took the opportunity to split the building into the community spaces and the academic spaces thus allowing two distinct campus structures with a small structure/bridge spanning the underground stream. The team exposed the end of the stream and developed a full outdoor classroom/presentation space around the stream. Art and science rooms open up to that end of the facility to encourage those uses of the stream and outdoor classroom area.



Art Courtyard.



02 The condensed and confined site with a high school building that had to remain operational provided the other unique challenge that became an opportunity. Knowing that the existing high school had to remain functioning while the new facility was constructed, and knowing the parking and playing field structures that had to be part of the resultant design, the team master planned the new high school to connect with the existing middle school. In the short term this will allow the two schools to share resources between performing arts and athletic structures, probably reducing the quantity of spaces required for each separately. The facilities will serve as a true secondary campus so as the educational program evolves from specifically a grade structure format to more a competencies based program, students can feel free to take classes wherever in the facility suites their academic needs.

UPPER MERION AREA MIDDLE SCHOOL

UPPER MERION AREA HIGH SCHOOL
PROPOSED FACILITY





Gymnasium.

07 OPTIONAL MATERIALS

EDUCATIONAL SPECIFICATIONS

The planning and design for the UMAHS was nearly a 2-year process that involved District and building administrators, faculty, students, community members and the design team. The vision for the design for this state-of-the-art facility was supported through the collaborative efforts of many.

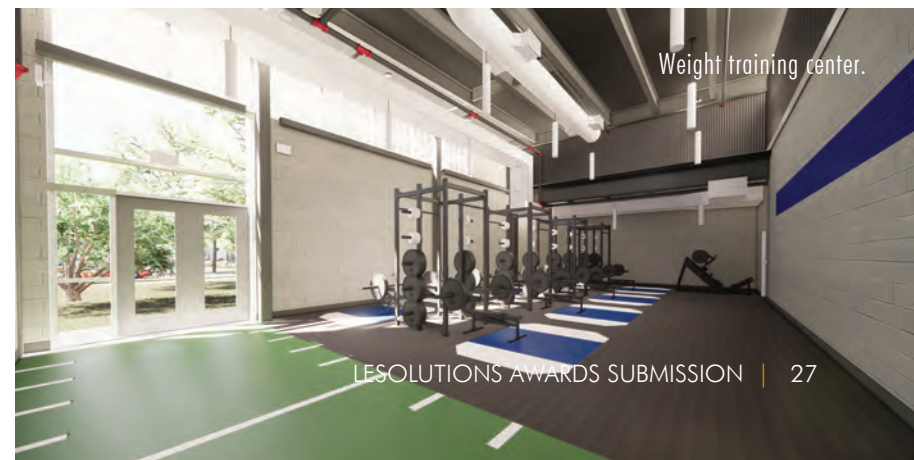
The program was structured around a combination of the District's current departmental structure with a future learning model that would be a mix between traditional classrooms and flex spaces. Extended learning spaces outside of the classrooms to enhance cross-circular work, combined with flexible commons spaces throughout the school, provide a variety of social and collaborative learning environments. The building design will continue to foster strong relationships between teachers and students and will support the culture of inclusion and school pride.

At key milestones throughout the design, community meetings were held to review the project scope and to receive input. The community overwhelmingly supported the design which was a reflection of the area corporate businesses' collaborative work environment. A rewarding attribute for facility poised to prepare students for career paths that would benefit the community at large.

As part of the development of the building design, the leadership team and key building administrators visited representative high schools in and out-of-state.



Counseling office.



Weight training center.

Experiencing the characteristics of the space design and program adjacencies, such as the Commons areas, proved to be an invaluable design tool to understand how the students and staff interact and work within these spaces throughout the day.

The following educational specifications of the Upper Merion Area High School outline the general design criteria for the individual spaces based on input from the high school staff and building administration. The inter-relationship and use of the spaces support cross-curriculum instruction, performing arts, wellness and physical fitness.

GENERAL

Building Organization

- The large, open central commons at the main entrance to be the organizing feature that anchors the floor plan for the new high school. The main entrance will be through a Commons area adjacent to a main parking area in front of the building.
- The gymnasium and auditorium to have direct access off of the main Commons. The Commons will be used for intermissions during sporting and performing arts events.
- The Performing Arts cluster featuring the auditorium to be supported by the music department classrooms.
- The Athletic program to include the district's competition gym and natatorium. Physical education programs to be built around wellness and physical fitness as part of the secondary program.
- The core learning classrooms to be located in a three-story academic wing. Core curriculum departments to be connected vertically via multi-story learning stairs with learning commons in each department to support learning through research, development and presentation areas.

Design Characteristics

- Daylighting the spaces and visual connectivity to be a top priority.

CORE STUDENT LEARNING SPACES

Core Academic Departments: English, Math, Social Studies and Science Departments that incorporate the following

- Department hubs with different types of flexible small and large group rooms to support each department.
- Provide transparency between classrooms and public spaces for supervision and to promote community and ownership of the public spaces.
- Combination science labs/classrooms. Prep and storage rooms located between (2) science rooms.
- Science rooms would benefit of adjacent to a stairwell for experiments.
- Glass partitions provide transparency from the classroom to the collaboration areas.

Academic Support

- Learning Commons for each main content area (English, Math, Social Studies and Science)
- Tiered Large Group Instruction (Learning stairs)
- Small Group Rooms and touch down areas to be provided in the corridors for student work.
- Instructional Planning Centers (IPC) for each hub.
- Provide storage rooms at the end of the core area for each department in each wing of the building.

Family & Consumer Science (FACS)

- Locate near Art and Tech Ed.
- Provide (2) food labs, one with kitchen stations and the other as a Culinary Arts lab.
- Child Development classroom adjacent to the Child Lab with observation window. Provide outdoor access for parent drop-off.
- Child area to be an interactive space for hands-on activities to support art, math, language, science, reading, play kitchen, and a sensory area.
- Fashion Lab
- Related storage for program spaces.

STEM (Science noted above) & Arts STE(A)M

The STE(A)M core to be located along one side of the building; Tech ED and Art to be located on the first floor.

Technology

- Tech Ed Manufacturing (Wood and Metal Shop) - Drama and scene shop will utilize these spaces
- STEAM production Lab (maker space)
- Technology Education classroom

Art

- 2-D and 3-D Art to be on the first floor and to have direct access to the exterior with overhead doors.
- Combination Digital Art/Year Book - Digital photography does not require direct exterior access.
- Provide large collaboration space directly adjacent to the rooms.

Business

- Business classrooms/Computer Tech Lab to be located on the first floor adjacent to Art and FACS.
- IPC shared with the other departments on that floor.
- Provide collaboration space directly outside of the classrooms. Commons space to be developed as a business hub with stock info ticker around the bulkhead. Design space to prepare for the corporate world.
- Provide location to display show student projects and marketing.

Special Education

- Small and Large Classrooms - Learning Support classrooms are capped at 15 students; provide folding partitions between small group rooms for added flexibility.
- Life Skills Instructional Space, Life Skills Lab (retail space) and Life Skills apartment (kitchenette, toilet and shower, washer and dryer)
- Emotional Support – program runs all day
- Autistic Support – provide sensory space with hands-on learning capabilities

- Speech and Reading Specialist
- Occupational Therapy/Physical Therapy (OT/PT) – PT to be located adjacent to Physical Education/Athletic Areas
- Study Skills – locate in SGIs
- Gifted / Virtual High School (VHS) for 20 students; locate adjacent to Media Center with visual connection

Administration and Staff Spaces

- Central Administrative Suite for building Administration and Guidance easily accessible with visual connection to the central Commons area.
- The Guidance suite to be an open space with table and chairs; provide counseling offices around the exterior perimeter of the space.
- Assistant principal offices with conference rooms to be located on the first and second floors of the classroom wing.
- Nurse's Suite - provide direct exterior access from the Nurse's suite for emergencies.
- Provide supporting work rooms, conference rooms, resource and records storage rooms.

COMMUNITY SPACES

Student Commons

- The Student Commons to be a multi-functional space that will be used throughout the day as a student lounge and home for study hall students.
- The Commons would also serve as the student dining area. Cafeteria spaces are typically underutilized because they lack important adjacencies.
- Provide a variety of seating areas including quiet and more intimate spaces.
- Teacher dining and workroom to be combined as a larger teacher lounge.

Kitchen/Serving

- To support the student population.
- Some stations could be open throughout the day for student use.

MEDIA RESOURCE/COMMONS SPACES

- Two-story space linking the dining Commons with the second floor Media Center/Library which is used as a “commons” type space by the students.
- Provide small breakout spaces for student group activities.
- English department should be in proximity to the Media center, if not directly adjacent.
- Provide integrated technology in the library conference room.
- Locate the Video Production Lab/TV Studio adjacent to the Media Center. These rooms to be linked to the Performing Arts and athletics wings of the building for media production.

FITNESS AND WELLNESS

- Main gymnasium to serve as the District’s competition gym for 1500-1600 seats with three (3) courts.
- Provide walking/running track at the mezzanine level.
- Auxiliary Gym
- Wrestling Room
- Wellness/Fitness Room with physical education equipment – provide visual connection to the athletic training room.
- Athletic Training Center for weight and strength training.
- Competition pool with a diving well and bulkhead. Spectator seating for the natatorium to be on the second floor with team seating below.
- Repurpose the current middle school pool for an auxiliary gym. The new competition pool to be a shared use at the secondary level.
- Provide the health classrooms adjacent to the gymnasium area.
- Trainer’s Room with equipment for rehabilitation. The Athletic Director’s office shall be adjacent to the trainer’s room and athletic lobby.
- Supporting facilities including coach’s offices, official’s locker room, team and locker rooms and storage facilities.
- The Multi-purpose room shall be on the first floor adjacent to the trainer.

PERFORMING ARTS

- Band (Instrumental) for 100 students, Choral (Vocal) for 100 students and Orchestra classrooms for 30-40 students.
- Offices, practice room and storage to support the program.
- Locate in proximity to the auditorium.
- Auditorium – provide seating for 450 on the lower level and 200 seats on upper mezzanine. Pull mezzanine forward to be closer to the stage to provide a more intimate performance experience. Provide retractable and folding partitions to close off space for much needed flex space for other programs at the upper level seating area.
- Stage to be designed with a full fly and wings. The thrust beyond the stage curtains and a cover over the orchestra pit to serve as additional stage space for performance flexibility.
- Provide an orchestra pit.
- Scene Shop
- Storage and dressing rooms to support the program.

FACILITY SUPPORT SPACES

- Network operations Center/IHELP Area for student IT support – locate IT Department on the second floor above the Administration Suite.
- Mechanical/Electrical rooms
- Building Receiving and Storage