

June 10, 2016

VIA EMAIL

Mr. Tod Altenburg
Chief School Business Official
Oak Park & River Forest High School District 200
201 North Scoville Avenue
Oak Park IL 60302

RE **Peer Review of OPRFHS Pool Option 5B**

Dear Mr. Altenburg:

Legat Architects was commissioned to develop conceptual design options for a new aquatic center for use by students, student athletes, faculty, and multiple community groups. The conceptual program and designs were developed with input from the user groups to fully understand the current and future programs which the proposed facility will support.

Following the approval of the Conceptual Design for the new aquatic center, Legat Architects was commissioned to proceed with the Program Verification for the proposed Aquatic Center.

The Program Verification process is a detailed study of the needs and requirements for each of the user groups and stakeholders. Eleven user groups participated in the program verification process which was led by the Core Design Team and approved by the Board of Education.

Each user group participated in multiple programming sessions attended by key representatives from the District Administration, Athletics, PE, and Legat Architects. After reviewing each and every identified 'need' presented by the user groups, the Core Design Team prioritized which needs could be accommodated and directed the Architect accordingly.

Each program verification session began with an analysis of the site and proceeded with a discussion about the required activities, space adjacencies, equipment requirements, and opportunities envisioned for the new aquatic center. These meetings were recorded through meeting minutes and were part of the final program verification documentation. Space Descriptions and Adjacency Diagrams were developed based upon the findings from the user group meetings. These documents formed the basis for the proposed building program which is a list of all required spaces needed in the facility and the square foot area of each.

Following the approval of the Program Verification documentation at the September 24, 2015 Board Meeting, Legat Architects was commissioned to be the Architect of Record for the new Aquatic Center at the October 14, 2015 Board Meeting and began the Schematic Design Phase of the contract. Legat Architects credited back District 200 the full value of the fees earned for the Program Verification Phase since we viewed this effort to be necessary for Schematic Design and the revisions to the program made during the Schematic Design Phase were limited.

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During the Schematic Design Phase Legat Architects led an interactive and collaborative design process which engaged the Core Design Team, selected user groups, students, student athletes, faculty and staff to further detail the needs, expectations and requirements of the Aquatic Center.

Although Legat Architects has experience designing and renovating numerous high school aquatic centers, pools are a specialty area requiring unique expertise. Legat Architects engaged Water Technologies Incorporated (WTI) as their pool consultant. WTI is the premier expert on aquatic center design and they understand the importance of cost effective and efficient pool designs which can be operated efficiently for the life of the facility and will be compliant with the requirements of the Illinois Department of Public Health.

Legat Architects has been asked by the Board of Education to review and comment on an alternative pool facility designed by two independent architects who reside and practice in the community. Legat Architects has met with and consulted with Garret Eakin and Frank Heitzman to review and collaborate on multiple iterations of their design concepts for the pool facility known as Options 5A and 5B.

Garret Eakin is an accomplished architect, educator and author with twenty five years of experience in planning, designing and building residential properties concentrated in the Chicago area.

Frank Heitzman is an accomplished architect, educator and author who has his own firm in Oak Park, Illinois with experience in historic restoration, architecture and interior design for park district facilities, public libraries, residential, retail, multi-family, and performing arts facilities in the Chicago region. Frank also has extensive experience in adaptive reuse and accessibility renovations. Notably, Heitzman Architects was teamed with SOM Architects on the addition the existing Plum Library in Lombard, Illinois. This addition is located underground beneath Lilacia Park with roof mounted skylights designed between landscaped gardens.

Legat Architects respects the accomplishments of both of these architects and welcomes their input, ideas, and creativity since such interactions can often improve the viability and success of any building design regardless of the building type. While Frank Heitzman and Garret Eakin may not have current experience designing high school facilities or competition aquatic centers, their input and creative solutions are welcome and we have found them to be receptive to our input and feedback.

Our review of the Option 5B conceptual design is based on our firm's experience coupled with years of input from the OPRFHS community about the function of their physical education, athletic, and community programs plus months developing conceptual designs, program verification, and the schematic designs of the aquatic center approved by the Core Design Team and the Board of Education.

Our comments frequently refer to the "needs" and "requirements" of the program. The Board of Education has the authority to modify and adjust the program to meet the District's needs and respond to changing programs and expectations.

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The following comments by Legat Architects are in response the conceptual design drawings reviewed during a meeting held June 1, 2016 in the studio of Legat Architects in Oak Brook, Illinois. The meeting was attended by Frank Heitzman, Garret Eakin, Rob Wroble, Patrick Brosnan, Fred Arkin, Steve Gevinson, and Tod Altenburg.

1. We recommend Option 5B include an additional stairwell to be located at the southwest corner of the pool facility to egress students, athletes, instructors, and coaches from the pool deck. The two stairwells on the lowest level are located on the east side of the underground building. When considering an emergency evacuation, spectators will exit from the upper level utilizing these stairs which will slow the exiting of 500-plus occupants from the pool deck, locker rooms, etc. below. The exiting process from an underground facility will be different from what is experienced in OPRFHS today where the majority of occupants travel down stairwells to exits at grade. The underground design requires occupants to climb stairs to exit which can be a slower process. It is also important to verify the location of the additional stairwell does not impact the use of the varsity baseball field or the visitor bleachers above the facility.
2. Daylighting is a recommended best practice for all educational facilities. While the design of Option 5B includes a significant amount of glazing at the above-grade building at the exit level, analysis indicates the majority of the natural light will not reach the pool deck and be blocked by spectator seating, concessions, toilet rooms, and mechanical/electrical rooms.
3. Concessions, toilet, custodial, mechanical, and electrical rooms are located on the Upper Level of Option 5B around the central stair. Analysis of the building sections reveals these spaces to have a clear height of approximately 7-feet 6-inches. This height is not appropriate and vertically expanding the volume of these spaces will further block the daylight from reaching the spectator seating area and thereby reduce the effectiveness of the glazing around the Entrance Level.
4. Option 5B does not incorporate a smoke evacuation system. Frank Heitzman noted in his preliminary code review that a smoke evacuation system will not be required. However, as we consider the number of occupants potentially in the facility for swim meets and the use of the building as a public pool facility, we recommend any underground solution incorporate air intake vents and a smoke evacuation system. It is important to determine the location of these components to assure that they will not impact the use of the Varsity Baseball Field above the facility.
5. The Lower Level and pool deck in Option 5B are indicated to be 30+ feet below grade. The bottom of the pool and adjacent pool filtration rooms are at 44+ feet below grade - significantly lower than our understanding of the ground water levels which vary from 5+ to 16+ below grade. During construction, continuous dewatering at multiple locations in the excavation will be required. On a permanent basis, a foundation drainage system supported

by sump pits with primary and back-up pumps will be necessary to be continuously move groundwater and storm water away from the building perimeter. These sump pits must be accessed for regular maintenance and be powered continuously with emergency power provided by a natural gas generator. A location for the emergency generator room must be identified with vertical chases to provide exhaust, make-up air, and natural gas piping.

6. Option 5B utilizes custom-designed steel trusses with curved bottom chords to support the roof and playfields above. The trusses have an overall height of six-feet eight-inches and are spaced apart twenty feet on-center. This structural system has not yet been designed by a structural engineer and the final truss design will play a significant role in determining the final depth of the building. Additionally, Option 5B does not accommodate the clearances required for the program requirement of future 3-meter diving. We recommend the Lower Level be made deeper to allow for flexibility with the truss design and placement of diving boards.
7. The custom-designed steel trusses spanning over the width of the pool and pool deck in Option 5B are supported by columns located in the front of the spectator seating thereby blocking the view of spectators. The structural columns needs to be located behind the spectators to allow for unobstructed views of the field of competition.
8. The roof design of Option 5B is flat. The building sections indicate there is no slope to facilitate proper drainage of the varsity baseball field located above the building. Based on the size of the building, a significant amount of water will collect on the roof which must be managed with an under-field drainage system sloped to carry water efficiently off the roof. Accommodating the sloped roof and drainage system will require the building to be deeper in the ground requiring more excavation than is currently designed. Using a minimal slope of one quarter inch per foot may require an additional two feet of excavation.
9. Spectator seating in Option 5B allows for spectators to walk along the front edge of the fixed seating. This pushes the first row of seating back 42-inches from the front railing negatively impacting the sight-lines for all spectators. Additionally, this creates a conflict between seated spectators and those moving to or from their seats.
10. Several rows of seats in Option 5B have no view of the water surface. It was noted that if a smaller seat width was considered, 450 spectators could be accommodated in seats with improved viewing opportunity. It was confirmed that each design being compared should use the same person-to-person spacing. For Option 5B, the affect will be to reduce the number of seats and create a means to enlarge the classroom required at the Upper Level.
11. Option 5B omits the space required for the surge tank system. This system typically resides in a mechanical space below the pool deck at the diving boards since the bottom of the surge tank must be even with the deepest bottom of the of the pool, the dive well.

OPRFHS requires access to these spaces by maintenance crews and vendors without walking across the pool deck while occupied. We recommend a 3,400 square foot mechanical space be provided below the pool deck which includes an access stair, freight elevator, chemical storage room, acid storage rooms with fill valves at street level, pool filtration room, surge tank room, and a secondary means of egress.

12. Dryland aerobic training space is required at the pool deck level and at the mezzanine level. The dryland space shown at the pool deck level in Option 5B cannot be properly utilized since it conflicts with on-deck telescoping bleachers for athletes and access to pool equipment storage. Additionally, no dryland space is provided at the mezzanine level.
13. Mechanical space is inadequate in Option 5B. The mechanical room located on the Upper Level appears to be approximately 7-feet 6-inches high which is not tall enough to accommodate the air handling equipment necessary to ventilate the building. Also, we recommend the mechanical room located on the Lower Level be elevated to the Upper Level with access via a corridor along the north wall. This will create additional storage space needed adjacent to the pool deck.
14. The mechanical rooms will house air handling equipment required to move significant quantities of fresh air and exhaust air. Also, an air cooled condensing unit open to the environment is required to provide chilled water for building cooler. Option 5B does not identify where exterior intake and exhaust louvers or the condensing unit are to be located. During the meeting it was proposed that these ducts could be routed to the east and then rise vertically to the surface adjacent to the Mall. With the current mechanical room locations, the intake and exhaust air louvers could be located 190 to 200-feet away from the air handling units which may exceed the requirements for an efficient and unobtrusive mechanical system design.
15. Instruction, coaching, operations, and security staff required the building be designed so each student, athlete, and visitor could be observed as they moved through the facility so as to create a safe environment. Clear, unobstructed views from key locations are required to minimize the number of staff needed to monitor students during class changes. Option 5B includes several corridors where clear line-of-sight is not possible.
16. Family Locker Rooms in Option 5B do not meet size and functional requirements. Also, these rooms are arranged along an unobservable corridor.
17. Option 5B combines the Coach's office and locker rooms into one space and does not provide separate locker rooms for male and female coaches.

18. Option 5B combines the Score Keeper Office with the Coaches' Office. In this location it is not possible for the Score Keepers to view the starting platforms, therefore, a table and chairs would need to be placed on the pool deck thus reducing the pool deck width and creating an unsafe condition for student athletes and coaches.
19. Toilet rooms for swimmers required at the pool deck level are not provided in Option 5B.
20. Option 5B places the swim suit and towel distribution/retrieval room in a location which cannot adequately services student swimmers.
21. The Entrance Level of Option 5B identifies a significant area as "open to below" which is intended to allow natural light to filter down to the two levels below grades. Analysis of the building sections reveals most of this open area to be above toilet, custodial, mechanical, and electrical rooms which are private, unsightly, and may not benefit from natural light.
22. Option 5B does not include vestibules which are required to be compliant with current State of Illinois energy codes for all public facilities.
23. The finishes in Option 5B do not meet the District's requirements. The efficiency of building operations and maintenance costs may be negatively impacted by the choices identified.
24. Please refer to the attached Building Program Comparison for a room-by-room comparison of the spaces included in Option 1 and how Option 5B compares.
25. Square Footage Summary as shown on the attached Building Program Comparison:
 - a. Option 1 (50-meter Pool): The building program approved 9/24/15..... 57,253 sf
 - b. Option 1 (50-meter Pool): The schematic design floor plan approved 1/13/16.. 57,820 sf
 - c. Option 1 (40-meter Pool): Conceptual floor plan with a smaller pool 54,750 sf
 - d. Option 5B (40-meter Pool): Presented to the Board 5/17/16 39,832 sf
 - e. Option 5B (40-meter Pool): Updated 6/2/16..... 47,042 sf
 - f. Option 5B (40-meter Pool): Conceptual adjustment to be equal with Option 1 .. 54,542 sf
26. Please refer to the attached Building Program Comparison for a room-by-room comparison of the spaces included in Option 1 and how Option 5B compares.

In summary, the concept of an underground pool building intended to preserve green space on the OPRFHS campus is an admirable pursuit. However, Option 5B does not adequately respond to the programmatic and functional needs of District 200. When the area of Option 1 is conceptually reduced to accommodate a 40-meter pool and the area of Option 5B is conceptually increased to better approximate the design approved by the Board, the difference is only 208 square feet.

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If you have any questions regarding our review of Option 5B, please do not hesitate to contact either Patrick Brosnan or myself.

Thank you.

Sincerely,



Robert W. Wroble, AIA LEED Ap
Associate Director | K-12 Education

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ATTACHMENTS Building Program Comparison, dated 6.10.16

EC Patrick Brosnan, Robin Randall Legat Architects
File: 216018.00:B2