Building School Squash Courts Requires Expertise

By: Scott Bates
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Photo Credit: Chuck Choi

In its simplest of concepts, a squash court is a three-dimensional box with one clear wall, through which spectators can watch the match, and an open top/ceiling. Yet, a squash court is far from that simple. Like the sport itself, the court is complex and dynamic taking into consideration a number of factors: the composite of the walls, the flooring, the ventilation, the lighting, and the paint. These factors are often further influenced if the court will be used for tournament play.

Having built squash courts for many of the independent schools in Massachusetts, Erland Construction has become very familiar with their intricacies, the firms that install the courts as well as the benefits and growing popularity of the sport.

This article discusses these intricacies while highlighting two recent squash projects/partnerships. While working with each school and their project teams, Erland Construction combined the individuality of the project with the necessity of the squash court considerations to successfully meet the objectives of each client and the regulations for tournament and non-tournament play.

Speed, strength and strategy are what students experience during a game of squash and part of the reasons why this racquet sport continues to gain popularity in schools like Fessenden in Newton, Massachusetts. More importantly, Randy Coplin, squash academy director at the all-boys independent school, says this game is incredibly fun to play and is all about teamwork.

"Squash is known to be one of the healthiest sports to play and although it gets you into shape physically," said Coplin, *"it's an amazing game to promote mental toughness and sportsmanship; and as a coach, it's a great way to help youth grow to become the best they can be."*

Fessenden's renowned squash academy offers private lessons, clinics and camps for players of all levels. Until recently, however, students did not have a home court to call their own. Fessenden hired Erland Construction – the leading open shop construction management and general contracting firm in the Northeast – to build the Roberts Family Squash Center, a 5,100SF addition to the school's existing athletic facility.

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"For thirty-plus years, we had a nomadic program, finding courts where we could to support our play," said Peter Sanderson, the athletic director at the all-boys independent school. *"For the first time in history, we can hold squash matches at home, which has given others in our school community the opportunity to watch their peers in action."*

Erland partnered with CBT Architects and Zimmerman Associates to create a space to house five Anderson Courts & Sport Surfaces, Inc. squash courts and a viewing area.

Photo Credit: Chuck Choi

Anderson's popular applied courts[1] include cushioned flooring, glass walls, hardware, doors and fittings. The design of the courts requires that the infrastructure of the court be built before the walls, flooring, and glass are applied. Steel framing can pose an early challenge when constructing these courts. A conflict like this can by identified and remedied during preconstruction by reviewing the drawings with the architect.

"You can't cheat a court in or out. When designing a court, it is important to be aware of these tight tolerances. The World Squash Federation (WSF)[2] only allows for three-eighths of an inch tolerance and this needs to be considered during any project," said Griffen.

In addition to the Roberts Family Squash Center at Fessenden, Erland has completed eight other squash facilities at several schools throughout the Boston area,

Progression of the Roberts Family Squash Center at the Fessenden School

Footnotes: [1]*http://www.andersoncourts.com/squash-court-types.html;* [2]*http://www.worldsquash.org/ws/wp-content/uploads/2016/12/161214_Court-Specifications-Small.pdf;* [3]*https://www.courttechusa.com/types-of-courts-1;* [4]*http://squashcourts.com/squash-courts/;* [5]*https://www.ussquash.com/squash-facts/*

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including Brooks School, Newton Country Day School, St. Mark's School and Phillips Academy Andover.

At Phillips Academy, students are required to participate in a physical activity as part of the school's overall health & wellness program – whether that means taking a yoga class or playing squash. Phillips Academy's robust squash program includes boys' and girls' junior varsity and varsity teams and is one of the largest school squash programs in the area. Since the year-round program had dramatically increased in size, Phillips' decided to expand its squash capacity with the revitalization of its aging athletic facilities as part of the school's overall master plan. Perkins+Will designed and Erland built the 98,800-square-foot Snyder Center, which houses 12 squash courts (11 regulation and one tournament grade) meeting World Squash Federation Standards[2] as well as 3 basketball courts, an indoor track, state-of-the-art training, fitness, and recreation equipment, exercise studios, meeting & classroom space, and locker rooms.

"Phillips offers a very serious squash program and they had a big focus on what type of courts they wanted to use," said Sean Griffen, project manager, Erland Construction. *"A school's squash court preference should come first during the planning process because the athletic facility will be designed around the courts. As any squash player will tell you, each type of court has a different feel. If that matters to the school, then this should be discussed during the budget process."*

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Erland knows that when selecting a court provider, the fabrication and materials used is incredibly important. The material must be strong enough that it can endure all the force from normal play and not deteriorate as a result of impact from balls and racquets.

After much consideration, Phillips Academy Andover selected CourtTech USA as their court provider. CourtTech's system walls[3] are delivered pre-assembled with steel braces built into high density panels made for squash play. To support these systems, there is tube steel on the corners and throughout the side wall assemblies which is bolted into the slab below. Once assembled, the walls get infilled with sand. The vertical steel braces within the wall have holes to allow for the sand to pass throughout the entire system. The sand expertly absorbs sound and the impact of the rubber squash ball.

Two less durable alternatives to the system walls CourtTech provides are panel or plaster walls. Overtime, panel and plaster courts typically fade, chip and break away faster affecting the rebound of the ball among other considerations. Panel courts also have multiple seams that can cause an untrue wall bounce, less tolerance to humidity and other environmental changes, and little to no noise reduction. Plaster courts require intensive labor to construct. Both panel and plaster have high maintenance costs.

Each squash player wants the ball to come back exactly as he or she played it and that will not happen if there are gaps, cracks or other obstacles in the court like what

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happens to panel and plaster walls. Erland recommends a system wall installation as there are no visible joints along with one flat surface. The ball rebound is consistently the same and follows the rules of physics making players happy. The other advantages of a system wall are the lower maintenance costs and proven durability as well as being the wall of choice among professional players and what's used for all major squash tournaments.

When constructing these courts, the flooring is just as important as the walls. Players' knees, hips and ankles can suffer from playing on inflexible hard flooring. For players' safety and comfort, today's flooring options have taken this into consideration. Most squash court flooring options are more flexible with shock absorption while ensuring true ball rebound and grip and thereby, often, are in accordance with the latest performance standards. To meet the World Squash Federation[2] requirements, the flooring should be a light colored unsealed hard wood textured surface. This allows the players to see the ball clearly during their fast-moving play. The standard court floor system utilizes 25/32" thick solid maple on top of a resilient subfloor made of rubber pads[4]. This design allows the floor to grow and shrink with humidity without damaging/buckling the court.

Ventilation also greatly impacts the game. Squash balls are extremely sensitive to the air flow within a court. Designing the right Cubic Feet per Minute (CFM) is critical to how the ball bounces and moves throughout the space and must be taken into consideration to meet squash regulations. The World Squash Federation's court specifications[2] says "a ventilation system shall provide no less than four complete air changes per hour when the court is in use." It is also required that the court walls and floor be ventilated in such a way to ensure that they remain free of condensation when the court is in use.

Lighting and paint are not to be forgotten; these are two of the often-overlooked elements in building squash courts. It is very important that the players can see the ball easily as it flies by at super-fast speed. To make sure this is possible, the Rule 11 of the World Squash Federation's court specifications[2] says "the court shall be lit by artificial light" with an illumination of at least 300LUX as measured 1m (3.3 feet) above the floor. Most players find that they still have a hard time seeing the ball with this level of light. Many companies are installing 500LUX (600LUX LED) with the same measurements in a layout which provides greater visibility without glare in all four corners of the court and not just the center. If the matches were to be filmed, the lighting level in an all-glass court would be a minimum of 1300LUX. Lights must be no lower than 5,64m (18.5 feet) measured from the top of the floor per competition regulations.

Paint is valuable not for visibility but for durability. White is the favorite color with salmon, green or blue following close behind. The paint must be strong and durable to not fleck, crack, or show any sign of wear and tear due to the force of the repeated strike of the ball and or racquet. If necessary, there is paint specifically made for squash courts. Working closely with CourtTech USA, Perkins+Will, and Erland Construction, Phillips Academy Andover could factor in all of these squash game play intricacies and regulations in order to produce the best space for their growing program.

Having partnered with Erland on several other campus projects, Phillips Academy recognized the company would bring its expertise in addition to its renowned collaborative approach to their project team. "Erland is a great partner throughout the whole process," said Tyler Hinckley, project architect, senior associate, Perkins+Will. "Working with them early-on was a really important step to making the school's vision a reality. Everyone on the team was really helpful to us." As with any true team effort, the court selection and construction processes are more productive under an ongoing program of open and timely communication; something that serves as one of Erland's guiding principles.

Squash is a fast-growing sport in the U.S. In 2005, only 16 high school teams competed in the national championships. According to the U.S. Squash organization[5], the high school championships are the largest event of its kind in the world with more than 170 teams. With our country holding the fastest growing rate of squash participation worldwide, it takes an expert construction team to build a squash court using preferred materials, while meeting your game play needs, world regulations, budget and schedule.

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