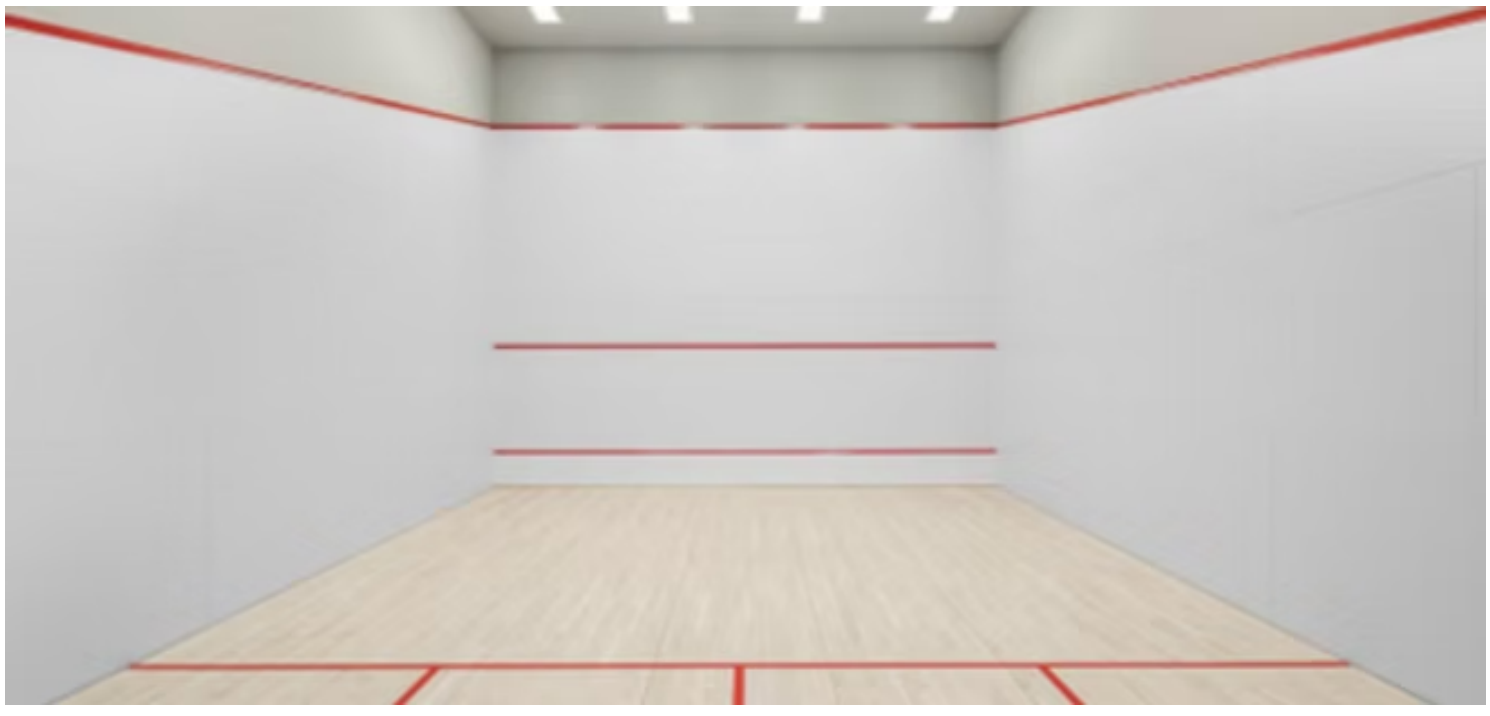
Markus Gaebel · May 16

What Makes Squash Courts Different – Part 3: Characteristics of Court Wall Types



In our series *What Makes Courts Different*, we explore how different squash court types impact both gameplay and facility design. In Part 1, we introduced the different court types and explained their significance, and in Part 2, we focused on outdoor courts and demountable show or glass courts.

In Part 3, SFN takes a closer look at the different types of court walls used specifically in indoor squash courts. To get a well-rounded view, we spoke with facility operators, coaches and players, investors and owners, as well as architects and designers. We asked what truly matters to them when it comes to wall performance and longevity.

Four key factors clearly stood out:

- Planning Mistakes Are Hard to Fix
- Court Acoustics: A Critical Yet Underestimated Element
- Playing Characteristics: Wall's Ball Bounce Behaviour
- Wall Durability: Built to Withstand Relentless Impact

Why these four? A squash ball can reach speeds over 200 km/h (124 mph) and may hit the walls up to 30 times in a single rally. This intensity directly affects noise levels, ball behaviour, and the wear on wall surfaces—making wall choice a crucial factor in court design and long-term facility performance.

1. Squash Court Planning Mistakes Are Hard to Fix

Achieving high-quality court walls starts long before construction begins. In the planning of squash facilities—especially when courts are just a small component within a larger project—squash-specific considerations are sometimes underestimated during the architectural phase. Based on over 30 years of experience in squash facility development, we've seen that challenges often arise when specialized expertise is not consulted early enough in the design process.

While many architects do seek input from experts when venturing into unfamiliar territory, there are still cases where generic specifications like "according to standard XY" are used in the tender documents without a deeper squash-specific evaluation. This can lead to courts being built with inappropriate choose of components. Likewise, general contractors unfamiliar with squash may underestimate the actual cost of proper court construction and may opt for lower-quality materials to stay within budget—sometimes compromising performance and durability.

Another aspect that is frequently overlooked is the architectural integration of squash courts within the overall building structure. Factors such as vibration control, ceiling height transitions, natural lighting, and acoustic separation require specific planning and coordination across disciplines. When these elements are not considered early on, retrofitting or corrective measures often prove costly or impractical.

Since squash courts typically represent only 5–10% of a facility's total construction costs, cutting corners here has little financial impact but a major effect on ROI. The best approach is for architects and project managers to consult with specialised experts from the beginning. This ensures that the court design reflects both technical requirements and long-term operational needs according to each specific business model.

Practical Recommendations:

- Consult with squash court specialists before initial design.
- Clearly define specifications in construction tenders.
- Ensure the selected contractor has proven expertise in squash facility construction.

2. Court Acoustics: A Critical Yet Underestimated Element

Noise levels significantly influence the playing environment and spectator comfort. While squash is inherently noisy, certain wall materials dramatically amplify sound. Particularly in facilities with multiple adjacent courts, excessive noise from ball impacts can create an unpleasant atmosphere, reducing player satisfaction and negatively impacting facility reputation.

Facility operators report that choosing wall materials with sound-dampening properties improves user experience, encouraging more frequent visits and longer stays. The right choice can also help attract new players, who might otherwise find high noise levels intimidating or unpleasant.

Practical Recommendations:

- Choose wall types specifically tested for acoustic properties.
- Consider acoustic insulation in facilities with multiple courts.
- Evaluate sound levels during planning with acoustic experts, especially for facilities integrated into larger buildings or community centres.

3. Playing Characteristics: Wall's Ball Bounce Behaviour

The characteristics of a squash court relies heavily on how the walls interact with the ball. Wall stiffness and surface properties greatly affect how consistently and predictably the ball bounces. Even slight wall deflections upon impact can alter ball trajectory, significantly influencing the fairness and quality of play.

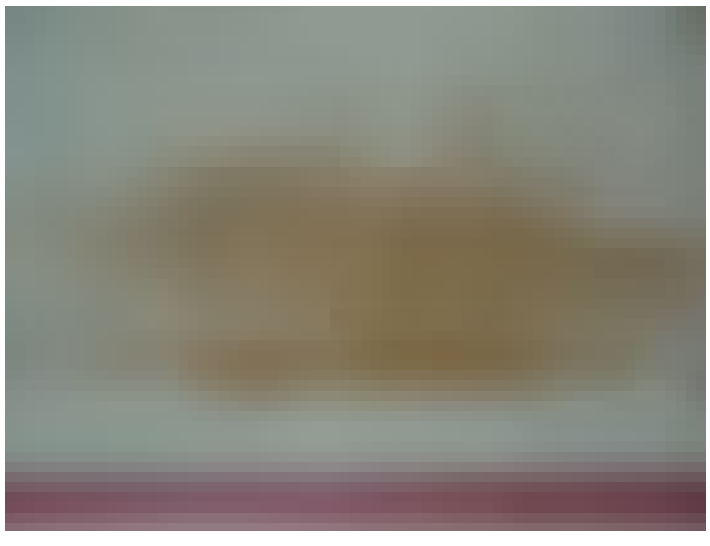
According to experienced coaches and players, walls that are too soft cause inconsistent rebounds, which impacts players' technique and enjoyment. Only uniform wall stiffness across all sections ensures a consistent rebound, leading to higher-quality gameplay and higher usage rates.

Practical Recommendations:

- Opt for proven, squash-specific wall systems known for consistent bounce behaviour.
- Involve experienced coaches in assessing and approving wall types.
- Avoid general-purpose wall systems not designed for this high-impact sport.

4. Wall Durability: Built to Withstand Relentless Impact

Squash is an exceptionally demanding sport for court surfaces. The walls are subjected to constant, high-velocity impacts—comparable to repeatedly striking them with a rubber mallet. Over time, this stress can lead not only to visible wear but also to surface damage such as chipping or flaking, especially in areas of frequent ball contact.



Typical damages by a low quality squash wall

The so-called *"squash effect"*, where the ball compresses and grips the wall before releasing, intensifies surface abrasion. Thousands of impacts can strip the wall's top layer over time.

All squash wall types will eventually show ball marks, which affect both the court's appearance and, in some cases, the playing characteristics. However, the extent of wear—and the effort required to maintain a clean and functional surface—varies greatly depending on the wall material.

Because a squash court is a long-term investment, typically offering a return over 5 to 10 years, it's essential to choose a wall system with a minimum 10-year warranty. This ensures that the structure maintains its performance and aesthetics throughout the key ROI period, while also reducing long-term maintenance costs and disruptions.

Practical Recommendations:

- Select durable, squash-specific wall materials explicitly designed to withstand long-term impacts.
- Choose wall surfaces that can be easily cleaned or quickly repainted, minimising court downtime.
- Verify the warranty offered by manufacturers aligns with the facility's planned ROI period.

Choosing the Right Wall Type: Practical Checklist

Following the four key factors—planning, acoustics, playing characteristics, and durability—it's essential to understand how each wall type performs in practice. The following checklists offer a side-by-side comparison of the four most common squash court wall systems.

System Wall (prefab, sand-filled)

- Planning: Prefab system walls are self-supporting and free standing. No deep foundation is usually needed, but heavy lifting equipment is required due to the weight of wall elements. Early-stage decisions include ensuring enough space for torage/assembly and planning for panel transport and placement. Some system walls allow movable walls (useful for doubles squash or multi-use spaces).

- Acoustic Performance: Sand-fill greatly reduces cavity resonance and dampens sound. These walls produce lower in-court noise and fewer rattles than hollow panels or glass. (Minimizing air gaps means less echo.) Expect a quieter court overall with limited noise transmission outside.

- Ball Bounce Behavior: The dense, filled construction yields a very solid, uniform rebound. Players will find the bounce consistent anywhere on the wall (no "dead spots"), because the sand-filled boards flex very little on impact. The firm feel is often described as giving reliable, true bounce on every shot.

- Maintenance & Durability: Very durable, low-wear surface (no joints or laminate to peel). Ball marks can be scrubbed off or covered by repainting; some systems allow quick repainting without full prep. Minimal cracking or warping is expected. These systems typically carry ~10-year warranties, reflecting their long service life.

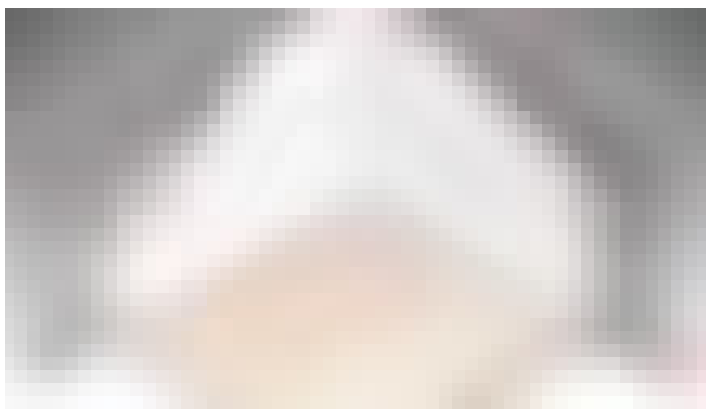
Plaster Wall (special squash plaster on blockwork)

- Planning: Traditional build requires constructing solid blockwork walls first, then applying a hard, modified gypsum plaster. This process is slow (blocks must set, plaster must cure) and needs skilled plasterers. On a new build, you must plan for footing, wall framing, and waterproofing. However, re-plastering an old court is straightforward and cost-effective. Early on, ensure the building wall is straight and structurally sound (poor underlying walls mean cracks later).

- Acoustic Performance: Plaster walls absorb and diffuse sound well. They offer good acoustics, with less echo and hiss compared to hollow-panel or glass walls. Solid masonry dampens ball impact noise and keeps in-court sound more contained. (Beware: if plaster cracks or chips, noise can increase.) Overall, plaster courts tend to be quieter for players and neighbours than other wall types.

- Ball Bounce Behavior: Provides a "true" and consistent bounce. The smooth plaster surface and rigid backing mean shots rebound predictably. Plaster is usually slightly "grippy" (high friction), which players like for control. As long as the surface is well-applied, bounce is even across the wall. Irregularities appear only if the plaster peels or cracks.

- Maintenance & Durability: Plaster can chip, crack or craze over time (especially if the building shifts). It may require periodic patching or full re-plastering. Ball marks tend to adhere to plaster, so walls often need scrubbing or repainting during downtime. Repairs usually require scaffolding and skilled labor. Expect to repaint every few years. Plaster suppliers typically only warranty the plaster layer, not the wall behind it, so long-term maintenance depends on both layers staying intact.



Panel Wall (fiberboard on frame)

- Planning: Panels (~28–38 mm thick)mounted on a wood or metal frame. Only a flat concrete slab is needed (no heavy foundation). Construction is fast (panels lock together), but installation requires heavy machinery (forklifts/cranes to place large panels). Plan for panel storage during build and for any vent or gap sealing, since panels are installed against the court frame.

- Acoustic Performance: Panel courts tend to be louder inside. Similar to glass, panel walls have higher sound reflection and can amplify ball impact noise. Cavities between panels and the structure can create resonance. In practice, expect a "bright" or "lively" sound—players and neighbours may hear more echo than with plaster or sand-fill courts. Sound insulation (cushioning or absorption behind panels) can help if noise is a concern.

- Ball Bounce Behavior: Bounce is consistent, with little variation across the wall. Rebound is slower than plaster but not as slowas glass. Joints are usually visible.

- Maintenance & Durability: Extremely low-maintenance surface. The factory finish resists cracking or peeling. Ball marks are noticeable but can often be washed away; Manufacturers often back panels with 10-year warranties.

Glass Wall (12 mm safety glass)

- Planning: Tempered glass panels require precise, specialist installation, and costs are usually higher. Many courts retrofit glass by bolting it to the existing front wall. Ensure that building access can accommodate large panels—even after completion —in case a replacement is needed due to breakage. Thermal and structural considerations, such as glass expansion and vibration, must be addressed early in the planning process.

- Acoustic Performance: Glass reflects and amplifies noise most of all. Sound levels inside are high (ball strikes are very loud), and sound can echo. The glass/air gap also can transmit noise to the outside. In short: expect high in-court noise and more disturbance to surrounding areas.

- Ball Bounce Behavior: The bounce characteristics of glass walls differ noticeably from other wall types due to the structural flexibility of the panels. A squash glass wall consists of multiple 12 mm tempered glass panels, joined at the edges with fittings. While each glass panel is extremely rigid at the corners and along the edges, the centre area of each panel can flex slightly under impact—typically a few millimetres.

  This means the ball rebound varies subtly depending on where the ball strikes the glass. Shots hitting close to a corner or panel joint experience a firmer, faster rebound. In contrast, balls hitting the centre of a panel may encounter slightly more flex, which can absorb some energy and affect rebound angle or height. The result is a generally consistent but not perfectly uniform bounce,

- Maintenance & Durability: Exceptionally hard surface. Glass resists scratches and doesn't wear out under ball impact. Ball marks and scuffs do not bind to glass, so cleaning is very easy. There's virtually no fading or need for repainting—lines are typically screen-printed. The main drawback is that any break or crack (rare if high-quality safety glass is used) means replacing the panel. In normal use, glass walls last for decades. Manufacturers usually provide a long warranty on the glass (e.g. 10+ years) reflecting this longevity.

Wall Choice Shapes Court Quality and Facility Success

Court walls do far more than define the boundaries of play—they shape the sound, speed, feel, and long-term performance of every squash match played inside them. As this post has shown, choosing the right wall type requires a deep understanding of how materials perform under pressure, how they affect the user experience, and how they fit into the overall business model of a facility.

Whether you're designing a high-performance competition venue or a multi-purpose community court, your decision should be guided by four core factors: solid planning, effective sound control, consistent bounce behaviour, and long-term durability.

Each wall type—system wall, plaster, panel, or glass—has its own strengths and considerations. There's no single "best" solution, but there is a best fit for each project. The key is to match technical performance with operational goals, budget realities, and user expectations.

In Part 4, SFN examines three essential factors that significantly influence gameplay, player comfort, operational efficiency, and long-term safety: flooring, heating and ventilation, and compliance with international safety standards for squash.

SFN