



RMHS Field House Project

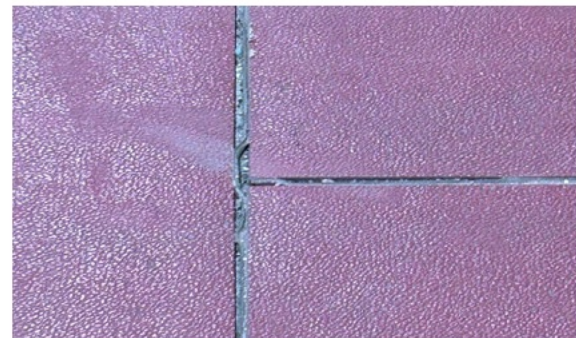
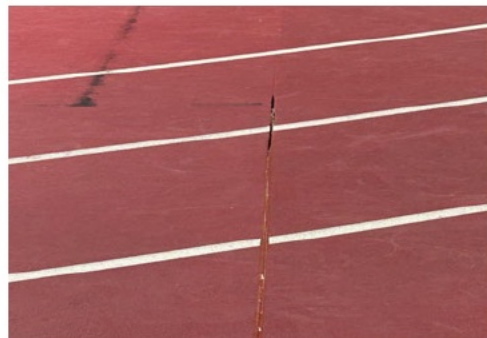
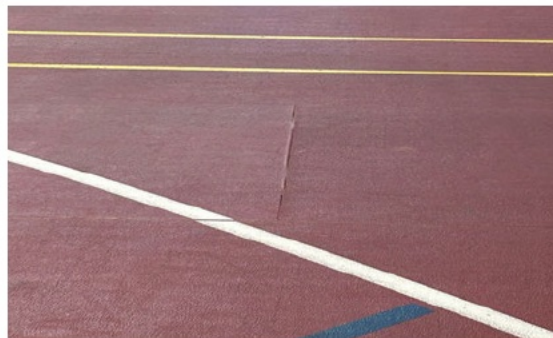
Reading School Committee Meeting

October 10, 2024



Background

At April 2024 Town Meeting, debt was authorized at \$1.7 million to replace the field house floor and bleachers at Reading Memorial High School. When the debt authorization was presented for the field house floor and bleachers, it was mentioned during the presentation that several options were being considered and if an option other than exact replacement of the existing floor was chosen as the best option, another authorization would need to be done. We believe that a wood athletic option, which is different than the exact replacement of the existing floor, is the best option for the floor given the safety and durability it provides.





Reading Memorial High School Field House

The Field House is generally in use from 8:00am-9:30pm, seven days/week, especially during heavy rental seasons.

The Field House is used for physical education classes, with a hundreds of students using the facility each day.

Multiple RMHS sports use the facility daily, including unified sports, cheer, dance, basketball, volleyball, and indoor track. As a result, hundreds of student athletes use the gym each day, with these numbers even higher during inclement weather.

The Field House is consistently rented for community use, with up to 600 participants playing on the surface on a given day during peak rental season. For example, 500-600 players participate on the floor each Sunday during the winter months for basketball with Reading Rec.

Given the high usage of the Field House and the main court, it is critical to provide as durable of a surface and safe of an experience as possible for all participants.



Floor Replacement Options

Our design phase has presented two* primary options:

1. Foam-backed Vinyl (in-kind product, “rubber”)
2. Wood Athletic (maple)

** Background provided in the Town Warrant (Article 15) outlines Lumaflex, a synthetic and real-wood composite material, as a third material we reviewed. However, at this point we are not considering Lumaflex as an option given the drop-off in quality, yet similar cost, when compared to wood.*

***Comparison information provide by Robert Belkner, President of FJRoberts Sports Surfaces, Inc.*



Floor Replacement Options

The differences between foam-backed vinyl and wood athletic floors fall into several categories. The main three factors have to do with student and community safety. The other three have to do with the quality of our investment:

Safety Factors:

1. Shock absorption
2. Energy return
3. Elasticity

Quality Factors:

4. Durability
5. Longevity
6. Aesthetics



Floor Replacement Options - Safety Factors

Safety factor	Foam-backed Vinyl	Wood Athletic	Ideal
Shock absorption	Good (Class 2) 22%-33% absorbed	Very Good (Class 4-5) Greater than 46% absorbed	50%

- Balance between shock absorption and energy return creates optimal safety and play.
- Generally speaking, as long as the energy return is remains appropriate, the ideal shock absorption for safety while playing basketball or volleyball is around 50%.
- **Proper shock absorption allows users to play longer with less joint impact. Lower shock absorption percentages increase the risk of overuse injuries.**



Floor Replacement Options - Safety Factors

Safety factor	Foam-backed Vinyl	Wood Athletic	Ideal
Energy return	OK	Very Good	Balance of shock absorption and energy return

- The amount of energy returned from the surface upon impact is referred to as the surface's Energy Return.
- Optimizing energy return allows players to participate longer with more energy. If there is imbalance between shock absorption and energy return, the result can be what is experienced when running in sand.
- **Balance between the ability to absorb shock, but return the energy constructively, is ideal for safety and game play.**



Floor Replacement Options - Safety Factors

Safety factor	Foam-backed Vinyl	Wood Athletic	Ideal
Elasticity	Point	Area	Area-elastic for pivot sports to reduce risk of catastrophic injury.

- Area-elastic floors (wood) do not just depress where the foot makes contact with the surface. Instead the floor's vertical depression extends out a measurable distance so that one's foot is less likely to get "stuck" in the surface upon rotation. Area-elastic floors are preferred for pivot sports (basketball/volleyball).
- Point-elastic floors are the opposite; the surface depression occurs closer to the foot impact point. Point-elastic floors are preferred for sports such as track and field.
- **When it comes to rotational sports such as basketball and volleyball, elasticity is widely considered as the most important safety feature because elasticity impacts risk of catastrophic injury.**



Floor Replacement Options - Quality Factors

Other factors	Foam-backed Vinyl	Wood Athletic	Ideal
Durability for rolling loads	Not good	Very good	Material that will hold up against non-athletic activities.

- A non-user performance difference between wood athletic and foam-backed vinyl surfaces is how each handles heavy rolling loads.
- **Wood surfaces handle rolling loads considerably better than foam-backed vinyl surfaces, which is important given overhead maintenance or other non-athletic requirements where heavy lifts may be needed on field house floor.**



Floor Replacement Options - Quality Factors

Other factors	Foam-backed Vinyl	Wood Athletic	Ideal
Longevity	Good ~20 years	Very good ~50 years	Long-lasting material that will keep its integrity over time to protect the community's investment

- Wood flooring requires more annual care and maintenance, especially when considering humidity and water mitigation.
- **When properly maintained, athletic wood surfaces last considerably longer than similarly maintained foam-backed vinyl surface.**



Floor Replacement Options - Quality Factors

Other factors	Foam-backed Vinyl	Wood Athletic	Ideal
Aesthetics	Good	Very good	Facilities that exude excellence and quality of programming.

- While safety and durability are the most important factors when considering this choice, we also believe that an additional benefit to wood is the aesthetic quality.
- **A wood floor is generally the norm for high school communities of similar size/competition level.** For example, 10 out of 11 other Middlesex League high schools already have, or are currently installing, wood athletic as their primary floor surface.



Total Project Costs

Total Project Costs: Foam-backed Vinyl	Total Project Costs: Wood Athletic
\$1.7M	\$3.0M

The wood athletic option unquestionably provides:

- a more durable and lasting surface
- a significantly safer and higher performing playing experience for our students, student-athletes, and community members.