

SAY Health and Community Centre

Chilliwack, BC, Canada (2022)

PRODUCT USED:
Hard-Cem®

OWNERS/DEVELOPERS:

Skowkale First Nation
Aitchelitz First Nation
Yakwekwioose First Nation

ARCHITECT:

David Nairne + Associates Ltd.

READY-MIX SUPPLIER/DISTRIBUTOR:

Lafarge

BACKGROUND

As part of a collaborative effort to expand their health, community, culture, and recreation services, the Skowkale, Aitchelitz, and Yakwekwioose First Nations chose to develop a health and community center. Funded by the First Nations themselves for over \$1 million and also through government investments of more than \$3 million, the center's design would be more than just a simple place for services. It would be a visual and cultural marvel designed by David Nairne + Associates Ltd., welcoming visitors with a space that would celebrate Salish architecture and display First Nations art.

Next to this space would be a number of other areas, including a carving spot, gymnasium, fitness room, multipurpose space, youth room, reception space, administrative space, playground, and community kitchen and garden. There would also be room for general and council-related office space, First Nations land management, community housing, and taxation facilities.

Each of which would have its own building challenges, but the gymnasium in particular was of concern to the center's construction team. They knew the gymnasium's concrete floor would need to withstand the frequent abrasive forces from those wanting to exercise in the facility. But to do that, the floor would need better durability. After all, while concrete on its own is already quite durable, it can be vulnerable to persistent abrasive and erosive activity, wearing away over time and leaving behind dips and grooves that could easily become a tripping hazard for visitors.

SOLUTION

To resolve this concern, the construction team looked for a concrete hardening solution that would improve the concrete's abrasion and erosion resistance. During their search, they knew they couldn't pick just any concrete hardener. They needed to find one that would have a low environmental impact, which is why they eventually decided to apply Kryton's Hard-Cem admixture.



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With this admixture, the construction team could double the gymnasium concrete floor's resistance to abrasion and erosion without health or environmental concerns. It came with a simple process too. All that was required was for the team's ready-mix supplier, Lafarge, to add Hard-Cem to the concrete mix during batching. Once there, the admixture's ground mineral-metal alloy material would spread throughout the mix, strengthening the cement paste's chemical microstructure.

None of it would require toxic silica dust like dry shake products or the addition of more carbon-intensive cement like high-performance concrete.

Instead, Hard-Cem uses non-toxic materials and makes the concrete resistant enough to impact that the center owners would be able to reduce how often they need to maintain and replace the concrete over time. That in turn will decrease how much cement they will need for the center's life span, lowering the development's overall lifetime carbon emissions.

Knowing this, the construction team was confident in their choice of concrete hardening solution and went on to apply Hard-Cem, ensuring that the center's gymnasium would remain a reliable facility for all who needed it.

