

Girdwood School – Girdwood, AK, USA

Project overview

MAPEI's *Ultratop*® PC polishable concrete topping was used in a public arts project at an elementary school in Alaska. The public art had a practical side, as *Ultratop* PC formed a durable yet artistic floor for students to walk on.



Project information

Project category:	Institutional – Elementary school
Period of construction:	2015
Year of MAPEI involvement:	2015
MAPEI coordinator:	Tom Lundgren
Project owner:	Anchorage School District
MAPEI distributor:	Anchorage Sand & Gravel Co., Inc.
Original designer:	Sheila Wyne
General contractor:	Watterson Construction
Decorative concrete contractor:	Performa, Inc.
Project manager:	Greg Hutchins – Performa, Inc.
Photographer:	Tom Lundgren
Project size:	7,000 sq. ft. (650 m ²)



MAPEI products used

- *Planibond*® EBA
- *Ultratop* PC
- *Mapecem*® Quickpatch
- *Planibond* AE

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Walk-on art brings the environment inside at Alaska elementary school

Girdwood School is located in Girdwood, Alaska, which is a year-round resort town surrounded by the peaks of the Chugach Mountain Range and famous internationally for its 5-star ski resort, Alyeska. The town is 36 miles southeast of Anchorage and just a short distance off from the flats of Turnagain Arm—a branch of Cook Inlet that progressively narrows, producing extreme tidal changes with bore tides as high as 10 ft. (3.05 m) tall.

The daily ebb and flow of the tides in Turnagain Arm produce unique features on the sand flats: Multi-color striations, transparent bubbles, and ever-changing reflections of sunlight on the rippled contour of the sandscape. Other defining features are the abundant wildlife and long winters with lots of snow. Fresh animal and snowshoe tracks are part of the daily Girdwood winter landscape.

The Anchorage architectural firm chosen to design both the expansion and the renovation to the original parts of the school (constructed in 1982) was McCool Carlson Green (MCG). Charged with the mission of developing a “Learning Signature” for the new school, MCG incorporated the essence of the Girdwood education and outdoor experience into a unique decorative motif for the school's interior.

MCG's concept called for leveling and smoothing all of the floors with a self-leveling concrete topping, which could be stained and polished to a high gloss. MCG consulted with Geoff Knock, the MAPEI specialist at Anchorage Sand & Gravel Co., Inc., and with Greg Hutchins of Performa, Inc. MAPEI's **Ultratop PC** polishable concrete topping was recommended for the project and approved by MCG.

MCG looked to a local Girdwood artist, Sheila Wyne, to evoke the Girdwood outdoor living experience in the floors using **Ultratop PC** and her creative concepts. Wyne was awarded the commission for the school's main public art project due to the exceptional idea that she submitted. She found inspiration for the new Girdwood School commons area and auditorium in the unique interplay of sunlight and topography within the Turnagain Arm sand flats.

Moose, ptarmigan and snowshoe tracks were created by Anchorage artists Jim Dault and Shala Dobson in the hallways of the school as part of a second project. Dault and Dobson used aluminum to fashion these tracks.

A major challenge for the artists was how to translate concept to reality—from the drawing board to a medium that could be attached to a concrete slab; that would stand up to heavy foot traffic, abrasion, cleaning chemicals, etc.; and would provide long-term performance and low maintenance.

First, **Mapecem Quickpatch** concrete patch was used to repair a minor defect in the floor. Then, **Planibond EBA** bonding agent was applied to the entire floor to ensure a perfect bond of the **Ultratop PC** to the substrate/floor. While the application was fresh, #16-grit sand was seeded into it at about 1 lb. per sq. ft. (4.88 kg per m²); the excess sand (i.e., the sand that was not stuck/bonded in the **Planibond EBA**) was removed.

Wyne decided on having the various smaller pieces of her artwork CNC-cut from 1/4" (6-mm) aluminum sheet stock to represent the bubbles that appear after the tides recede in

Turnagain Arm. She also used 1/2" (12-mm) tall aluminum strips to replicate the striations in the sand flats created by the ebb and flow of the Turnagain tides. The aluminum strips were epoxy-anchored in place on the concrete slab in the form of curves.

CNC-cut snowshoe tracks and moose tracks, as well as the bubble circles found in the sand flats, were hand-placed and epoxy-anchored to the slab by Wyne, Dault and Dobson per their master plans.

Planibond AE anchoring gel was used to anchor the aluminum strips and the other embeds to the **Planibond EBA** and sand surface. After these aluminum pieces were laid out and **Planibond AE** had dried, Hutchins and his crew from Performa came in and began pouring **Ultratop PC** in the hallways and the common areas/auditorium, flowing it just over the surface of the embedded aluminum pieces that created the various themes.

Hutchins and his crew felt that **Ultratop PC** was very well-suited to the project and were especially happy with how it poured. They were able to drill-mix it to a fluid consistency very easily, and there was plenty of working time to flow **Ultratop PC** around all of the embedded aluminum strips and design features. The concrete topping set at a uniform, predictable rate, enhancing the crew's production rates throughout the common areas/auditorium and hallways.

After the **Ultratop PC** had cured for 24 hours, Hutchin's team started the grinding and polishing procedures. The **Ultratop PC** had to be cut down to the surface of the embedded aluminum strips, snowshoes, moose tracks, etc., in order to fully expose them within the floor. The technicians used coarse diamond grinding pads at first and gradually progressed to finer and finer diamond pads until a smooth, scratch-free surface appeared.

One challenge resulted from grinding the aluminum and the concrete topping. The technicians did three different mockups in Performa's shop, using different techniques to minimize any issues caused by grinding the two different surfaces. They spent 80 hours in the shop on the mockups before going down to the jobsite, so they were well prepared. The aluminum grinding created a black film over the surface of the **Ultratop PC**. If the black film was not properly cleaned off of the concrete topping, it could ruin the look of the project, so careful cleaning was mandatory.

Next, five different acetone-carried stains were applied per Wyne's color scheme to evoke the natural striations and bubbles created in the Turnagain Arm sand flat by the daily tides. The stains were applied, scrubbed and cleaned; then, the process was repeated a second time. After the stains were dry, a lithium densifier was applied to lock in the color of the stain.

The final steps involved the use of a polishing diamond, followed by a coat of sealer. A second coat of sealer was applied, and then the final shine was brought out by using burnishing pads on a large buffer. Again, Hutchins was very pleased with the way that the stained **Ultratop PC** material responded to the densifier and could be brought up to a high polish, bringing the embedded aluminum details to life.

The Girdwood School project is very special for many reasons. The floor art is totally unique and captures the essence of daily life and nature in rural Girdwood. The difficulty factor in turning the architects' and artists' concept into reality rested with the skill of the installer in polishing both concrete and aluminum – which are vastly different in hardness – and with blending stains and dyes to achieve the color nuances that were required to deliver the intended artistic impact. The self-leveling topping performed flawlessly to provide a level and uniform medium for dying and staining, as well as create a uniform shine.

These artistic floors were the first project in Alaska to use **Ultratop PC**, and its success has already begun to generate others. MAPEI thanks all of the players who made this a showcase project.

