

PARAGLAS SOUNDSTOP®
NOISE BARRIER SHEET

Durisol®

NEWS

FROM THE LEADER IN SPECIALTY
ACRYLIC SOLUTIONS

“This wall is a very unique project, and there is not another noise barrier like this in North America.”

- Mike Edwards, Durisol, USA Inc.

SOUNDING OFF ABOUT TRANSPARENT HIGHWAY NOISE BARRIERS

When the Alaska Department of Transportation (ADOT) sponsored a project to mitigate highway noise for a local residential area, it encountered some obstacles. The heavily traveled highway to Anchorage Airport bordered a community that had long enjoyed scenic views of the local Chugach Mountain range. The noise barrier would approximately run a 4,000-foot stretch of highway and vary from 10-17 feet high. Due to the community's orientation to the sun, a solid 17-foot noise barrier would cast a permanent dark shadow on these yards and deny the few hours of sunlight that reached them.

Known as the C Street project, ADOT along with local authorities ultimately concluded that a transparent noise barrier was the only acceptable solution. Uncommon in North America, transparent noise barriers first emerged in Europe to mitigate sound while preserving the natural landscape. This barrier would be a unique structure in North America.

With over 50 years' experience manufacturing noise barriers, Durisol, USA Inc. (McLean, VA) an exterior environmental noise mitigation company, proposed a unique solution: new PARAGLAS SOUNDSTOP Noise Barrier sheet from CYRO Industries. Available in Europe and only recently introduced to North America, PARAGLAS SOUNDSTOP sheet offers superior UV stability and weather resistance over other transparent materials such as polycarbonate plastic. This helps ensure long-term clarity to preserve pristine views.

Broadening The Spec

ADOT originally specified the noise barrier to be a translucent sound absorptive structure with a Noise Reduction Coefficient (NRC) of 0.60 and provide a minimum of 80% light transmission. An entirely translucent wall could not provide the light transmission quality sought by the project engineers. “We alerted ADOT and worked to open the spec to Durisol panels and transparent PARAGLAS SOUNDSTOP sheets and formulated a design proposal that would fit this spec,” remarks Mike Edwards, Vice President, Durisol, USA Inc.

Durisol manufactures sound absorptive panels made of a proprietary wood aggregate concrete mix that provides significant acoustic dampening and sound absorption. The Durisol panels would provide the noise absorption for the barrier wall, while CYRO's transparent PARAGLAS SOUNDSTOP sheet would provide 92% light transmission, and additional noise protection for the barrier.



CYRO's transparent PARAGLAS SOUNDSTOP sheet provides 92% light transmission, and excellent noise protection.

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“The sun rides low in the winter, and the residents wanted to maintain their view of the Chugach Mountain range. This barrier is the best of both worlds, providing noise abatement and an attractive view.”

- Harold Henderson, Alaska Department of Transportation

The solution chosen by the committee was a unique wall designed by Durisol incorporating solid Durisol panels along the bottom to absorb sound and transparent PARAGLAS SOUNDSTOP panels along the top. To enhance durability and ease maintenance issues, Durisol placed the PARAGLAS glazing above solid Durisol panels that have an architectural finish. This design provides the necessary NRC to meet ADOT's spec, while limiting the perceived height of the wall. The use of transparent panels at the top of the structure allows light to pass through PARAGLAS SOUNDSTOP sheet without casting shadows and preserving the views of the natural mountain landscape.

Material Performance

The absorptive barrier qualities derive from Durisol's proprietary wood aggregate panels along the bottom of the wall and covering the supporting posts. The posts are covered with an absorptive cladding to maximize the sound absorptive surface area of the barrier. The pre-cast frames with absorptive surface, designed and manufactured by Durisol, seat the PARAGLAS SOUNDSTOP panels. The Durisol panels give the wall an NRC of 0.80 – 0.85, easily exceeding the ADOT spec and further reducing the noise levels heard from the highway.

“Durisol is not a plastics expert, but we've seen some polycarbonate walls on tour in San Diego that had yellowed and been replaced by acrylic, which immediately directed us to CYRO when bidding this project. No other material was even considered,” notes Edwards.

Graffiti was another issue with the barrier wall. The specification called for materials that only required a hot pressure wash to remove graffiti. Both the Durisol panels and CYRO's PARAGLAS SOUNDSTOP sheet use a simple process requiring a solvent to remove paint.



PARAGLAS SOUNDSTOP provides excellent light transmittance, great impact strength, and easy graffiti removal.

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Glaring Issues

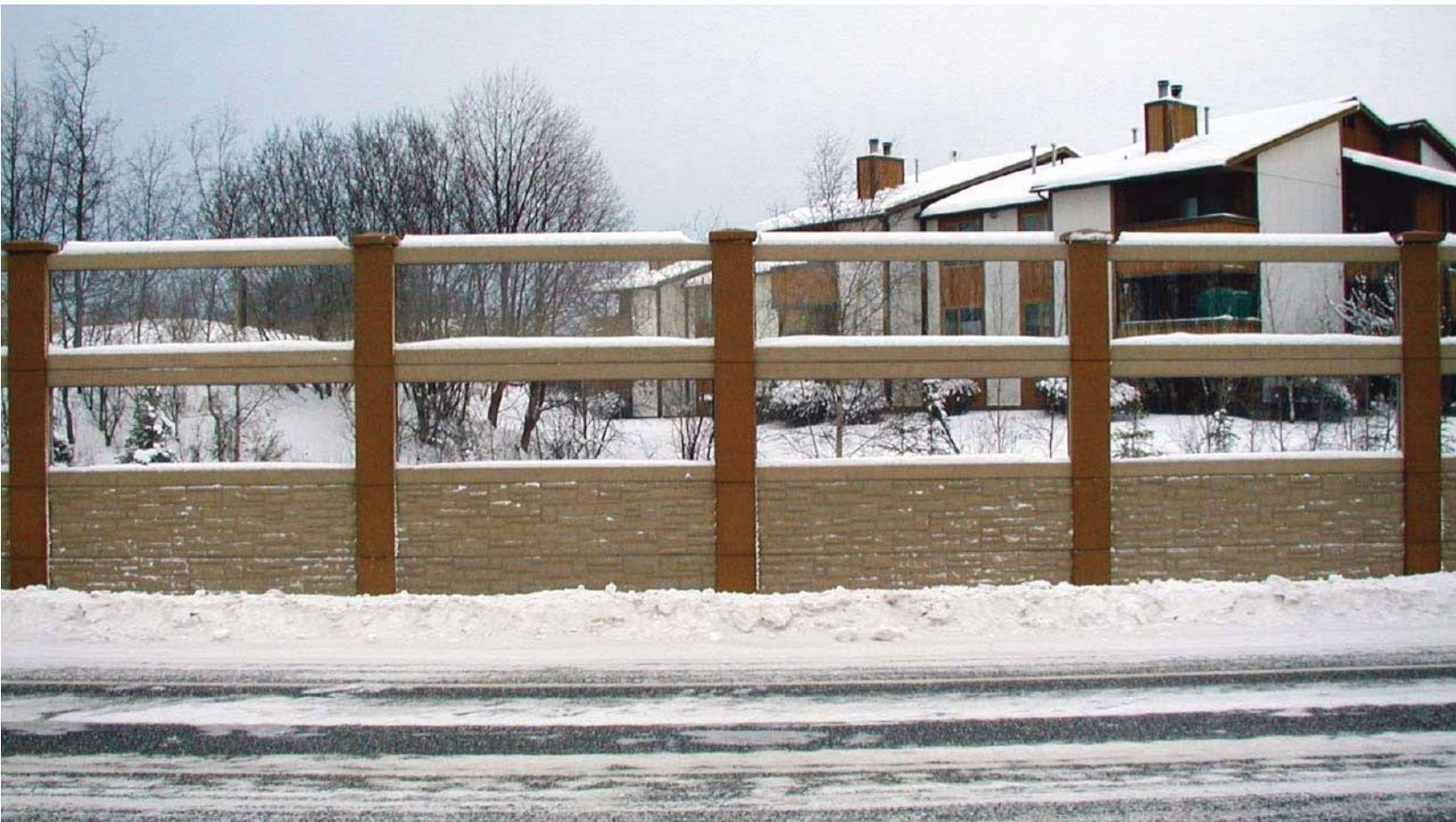
Transparent noise barriers raise some concerns about reflected glare and whether a matte finish is necessary. Having conducted studies on this issue in Europe, CYRO was able to provide data demonstrating that glare is not a significant cause of driver distraction. In addition to this data, CYRO was also able to supply the com-

mittee with samples of frosted PARAGLAS SOUNDSTOP sheet for review. After comparing the sheet and noting the height of the panels, the matte finish was determined to be unnecessary and the committee selected the transparent sheet for the project. The committee also specified Smoky Brown tinted panels in certain areas of the wall where visibility and light transmission were not an issue. The Smoky Brown tinted panels were chosen because they matched the colors of the wall.

“PARAGLAS SOUNDSTOP exhibited more of the properties we were looking for with this project. With excellent light transmittance, great impact strength, and easy graffiti removal, the material outperformed the competition.”

- Harold Henderson, Alaska Department of Transportation

“We proved to the state that we could produce a wall to meet its requirements, whether it was color-matched tints or different surface options,” notes Steve Barratt, market manager, Noise Protection Products, CYRO Industries.



The design provides necessary noise abatement while preserving the views of the mountain landscape for homeowners.

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Interested in PARAGLAS
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Barrier Sheet?

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Building The Great Wall
Cost-effective construction processes offset minor cost variations in the proposals and lowered the total project cost of the Durisol barrier below the competition. Most highway noise barrier foundations designed by Durisol consist of augured or drilled shaft foundations, however in Alaska driving piles is the more common practice. The eight and ten inch diameter piles were precisely spaced within a

Materials were shipped a total of 7,000 miles from CYRO's Arkansas plant, and from the Durisol plant in Canada without damage or delay. At the end of the project, a total of 18,000 square feet of PARAGLAS SOUNDSTOP Sheet, 32,500 square feet of Durisol panels, and 363 concrete frames were produced, shipped and installed. The result is an attractive noise barrier wall that fits nicely within the context of the land and the community.



PARAGLAS SOUNDSTOP Noise Barrier Sheet remains clear and will not yellow like polycarbonate materials.

one inch margin and driven 15-16 feet deep to properly support the wall panels. Noise wall H-posts were bolted to a welded plate on the pilings. Durisol designed the H-posts specifically for this project to accommodate additional absorptive cladding and properly support the transparent glazing. The framed transparent panels were completely pre-assembled before being lowered into place between the posts.

"Since the barrier's completion we've received nothing but positive feedback on the project from local homeowners as well as passersby on the highway. People are genuinely impressed with the wall's appearance and performance," concludes Henderson.