Bin-Wall

retaining walls

OWNER
Public Works Canada

LOCATION
Cabot Trail
Cape Breton Highlands
National Park

CONSULTANT
Vaughan Engineering
Associates Limited, Halifax N.S.

CONTRACTOR
Martell Construction,
North Sydney, N.S.

During the summer of 1991, Public Works Canada rebuilt more than seven kilometres of approach roads to the summit of North Mountain, on the Cabot Trail, in Cape Breton Highlands National Park. The project called for realignment of the roadway centreline which required installing retaining walls along the steep side slopes.

Because this project was located entirely within a National Park, environmental considerations and the appearance of the final product went considerably beyond the standards for normal roadway construction. The Cabot Trail is one of the most scenic roadways in the country and Parks Canada wanted as little impact on this roadway as possible.

Once it had been determined that a gravity-based retaining wall was required, a timber-crib wall was specified. The decision to specify timber-cribs instead of steel bin-type retaining walls was greatly influenced by the aesthetically pleasing natural appearance of wood.

Armtec bin-type retaining walls are a system of adjoining closed-faced steel bins. Once backfilled, the compacted soil mass becomes a permanent, gravity-based retaining wall. The rugged modular looks and strong horizontal lines of Armtec Bin-Walls blend in well in most environments. When this is not the case, then the modular nature of the Bin-Walls allows for changes to be easily made.

Armtec proposed substituting pressure treated timbers for the galvanized steel stringers normally used in the Bin-Wall face. The steel vertical connectors would be covered with wooden planking. The end result is a steel wall which has all the appearance of timber-cribs.

A mock-up of the steel/timber wall was assembled at Armtec's plant in Sackville, New Brunswick. Representatives of Public Works Canada were then able to see for themselves that the wall had the natural appearance that they were looking for.

CASE HISTORY

Timber Faced Bin-Wall Changing the Face of Retaining Walls

Head Office: 15 Campbell Road, P.O.Box 3000, Guelph, Ontario N1H 6P2

Sales Offices: Nanaimo, Prince George, Edmonton, Calgary, Lethbridge, Grande Prairie, Saskatoon, Winnipeg, Thunder Bay, Sudbury, London, Toronto, Peterborough, Ottawa, Quebec City, Halifax, St. John's and Bishop's Falls

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Of special note to Public Works Canada and the Contractor, Martell Construction, North Sydney, Nova Scotia were:

1. Cost savings of $100,000
2. Less excavation required
3. Easily designed for curved roadway.
4. Independent analysis confirming Bin-Wall stability.
5. Installed easier than timber-cribs.

After the material was shipped to the site, the layout for most of the original 17 walls was changed. Realignment of the road in this rugged terrain called for many changes in the complex series of horizontal and vertical curves. This is where the versatility of the Armtec Bin-Wall system rose to the challenge. Armtec's Engineering department modified the layout drawings as new alignment information was faxed from the field. The new walls were assembled from the material already on site and the new Armtec shop drawings.

"The Timber faced binwall alternative proposed by Armtec in 1991 for use on our road reconstruction and widening of the Cabot Trail through North Mountain has proved to be a very cost effective retaining structure and blended well with the rugged nature landscape of this scenic highway. The ease of installation was a critical element in the timely and successful completion of this most intricate project. We have, and continue to receive many positive comments from the public on this project. After three years the timber faced binwall has performed well and no maintenance has been required to date." - Stephen Burns, Area Transportation Engineer, Public Works Canada.

The timber faced Bin-Walls have been in service for several years, and all parties are pleased with the results. The National Park has a wall meeting the criteria of aesthetics, ruggedness, durability, and last but not least, economy.

Timber Faced Bin-Wall
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Test model set-up in Sackville, New Brunswick.

Finished wall installed.

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