



Brentwood Gate

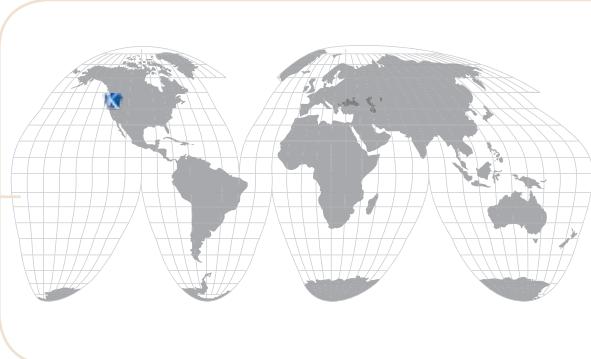
Vancouver, British Columbia, Canada

At Brentwood Gate, a new master-planned community in suburban Vancouver, nature-inspired landscaping and architectural beauty are high priorities. When the development needed a large retaining wall, the Keystone 133Elite™ system and some innovative engineering delivered a striking façade that fit right in.

Brentwood Gate is a large, pedestrian-friendly development situated on a steep slope in Burnaby, British Columbia. The design of an underground parking structure left an exposed three-story concrete wall in a highly visible area. A retaining wall was called for in front of the parkade to provide structural stability, add aesthetic appeal and allow egress from the building.

A Tall Order for Tight Quarters

The project presented several challenges, including limited construction space and a complex wall design with numerous curving and angled tiers tapering into the building. Good looks were essential for the project, which is located along a busy highway adjacent to Vancouver's Skytrain line. A modular block wall created out of Keystone 133Elite units allowed the engineering details necessary to create this tall, complicated wall in the narrow space available.



Project: *Brentwood Gate*

Location: *Burnaby, British Columbia*

Keystone Product: *Keystone 133Elite™*

Licensed Manufacturer: *Basalite Concrete Products*

Total Wall Area: *30,000 square feet*

Wall Contractor/Installer: *Gemelli Stonework, Inc.*

Wall Engineer: *John Carter, Engineer,
GeoPacific Consultants, Ltd.*



LAND MANAGEMENT
CASE STUDY



The project spans about 1200 feet and is approximately 30 feet high, making it one of the highest segmental retaining walls in the Vancouver area. About 30,000 square feet of 133Elite units were used for the upper tiers. A reinforced concrete wall forms the lowest tier.

"The complexity of the landscape architect's design was one of the biggest challenges," says John Carter, project engineer with GeoPacific Consultants Ltd., Vancouver. "Vancouver has very stringent seismic requirements. The tapered sections of wall result in a gradual reduction of geogrid length. This poses a problem for seismic stability."

To overcome these concerns, Carter's design called for the geogrid at the wall margins to be secured to the parking structure itself. The wall is

reinforced with Stratagrid 200 and Stratagrid 350. In places where the wall tapers inward and the required length of reinforcement could not be installed, the geogrid is attached to the structure using a galvanized angle iron bolted to the foundation.

Keystone's patented fiberglass pins accommodate this innovative design by ensuring a positive mechanical connection between the blocks and the geogrid. "The strength of the pin system is key for us," says Carter. "The stronger connection greatly helps in our design."

The lowest wall tier, which was below the foundation of the parkade, added another design challenge. Because the required length of geogrid would necessitate excavation that could undermine the foundation of the brand new structure, this tier was built as an anchor-supported concrete wall. This combination of two wall systems offered the look, stability and economy the client needed.

Aesthetics and Affordability

The hewnstone face design chosen by the project developer coordinated well with the architecture and grounds of Brentwood Gate. The larger size of the 133Elite units also offered an appropriate scale for this expansive wall.

While aesthetics played a role in the choice, budget was also a concern. The 133Elite system offered several advantages here.

"Material costs were less because you're getting 1.33 square feet of coverage for roughly the same price as a one square foot block," says Brian Nemez, of Basalite Concrete Products, Keystone Licensed Manufacturer and supplier for the project. "You're also getting more coverage with the same labor. With more square footage per pallet, there are savings there too."

The height of the wall and the narrow construction area presented some access complications for installer Jim Paquette and his crew from Gemelli Stonework Inc. "There was no machinery access other than by crane," says Paquette, "We had to use cranes to lift excavators in behind the wall and a telescopic boom to fill the wall."

This was Paquette's first experience using 133Elite and he was impressed with the system's versatility and ease of construction. "Because the units are bigger, we could build the wall a lot faster," he says. "We were also able to build two-sided walls in a couple of sections by interlocking units back to back."

With its rugged good looks, the Keystone 133Elite wall has become an attractive focal point in this vibrant, urban neighborhood.

For more information on the Keystone 133Elite™ unit or other innovative Keystone products, please visit www.keystonewalls.com or call 800-747-8971. Keystone Retaining Wall Systems, Inc. is a subsidiary of CONTECH Construction Products Inc.



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