

The Kal-SR* System

Kal-SR is a semi-rigid wall system for soil retention and stabilization. Its development started in 1996 and since January 1998 it has been available for general use.

Kal-SR wall facing elements comprise the kernel of the entire system. They are fabricated as large, hollow concrete blocks by an automated dry-casting process (see part 3 on next page). The spatial structure of the wall-facing elements provides the wall with strength and stability. It also allows for interconnection of subsequently stacked layers of the wall-facing (“groove and tongue” connection in a leap-frog manner) by pouring concrete into the voids at the interfaces, while the rest of the voids may be filled with soil, thus saving concrete (part 16 and 17). The voids also allow for creating reinforced soldier columns for soil nails (part 12) or reinforced anchoring beams for soil anchors (part 13).

Kal-SR system innovation and uniqueness lies in its combining the advantages of rigidity in a traditional gravity wall, with those of flexibility in a crib wall. Therefore it can be constructed as a retaining wall of very high dimensions (over 20 m without batter or berm).

Kal-SR retaining walls can be designed and constructed for a variety of heights, site conditions, and soil properties. It can be constructed in sites with very limited access and right-of-way, and in locations where the space at the back of the wall does not allow horizontal soil reinforcement.

The **Kal-SR** system is an innovative, overall design-built solution for soil retention and stabilization, constructed fully by Kal-Binyan Company and designed by expert engineers according to local (Israeli) and international standards for particular site conditions.

More than 70,000 m² (700,000 sq. ft.) of **Kal-SR** retaining walls have been constructed in Israel since its development. It is expected that in the future the system will be used as an economic and engineering-wise superior solution for soil retention and stabilization for a wide variety of site conditions over the world.

The limit state design of **Kal-SR** system accounts for high safety factors against both overall (external and internal) and partial (constructive) instability, assuming in particular very high safety factors for failure during earthquakes.

The **Kal-SR** system functions also as traffic noise barrier to reduce noise experienced beside roads and highways. Its rigidity and flexibility can also be utilized for military purposes.

** 1998- US and International Patent Pending*

1998- Approved by the National Institute for Building Research as Complying with all Performance Specifications for Retaining Walls.

Additional Features of Kal-SR Retaining Wall System

• Quality of an industrialized product • Capability to adjust the wall erection schedule to remove the wall construction from the critical path of the project • Convenience in storage, loading, transportation, and erection of the retaining wall • Simple, fast, and precise implementation • Construction process that enables strong connection between the wall facing elements with minimal need for binding materials.

• Possibility to use local soil as backfill • Backfill drainage and prevention of hydrostatic pressures is obtained via the wall facing elements without a need for piping • Aesthetic appearance of the wall adapted to a variety of architectural specifications, with no effect on the structural design of the retaining wall.

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