HILFIKER'S SPIRALNAIL SOLUTIONS FOR RETAINING WALLS

Do you have retaining wall challenges? Need to add more loading or extend the service life of an existing wall? Read more to find out how Hilfiker Retaining Walls can solve existing wall problems with our Spiralnail Solutions!

Spiralnail Facts

The Spiralnail is the most recent addition to Hilfiker's product lineup. The proprietary spiraled shape allows this nail to be driven directly into the earth providing superior pullout values with a wide array of applications having advantages over conventional soil nails that typically require grouting.

US Patent No.: US 6,874,975 B2

Applications:

- Soil reinforcement system for retaining walls, steep slope stabilization, guardrail support, & foundation improvement
- Soil nailing – top-down construction allows for traffic continuance in staged construction
- Emergency / immediate soil retention
- Subdrainage of soils – can be used as slope dewatering solutions
- Repairs or additional reinforcing of existing walls
- Temporary wall support
- Construction shoring
- Pin piles or spiralpiles for Foundation Support / Remediation and Bearing Capacity Enhancement

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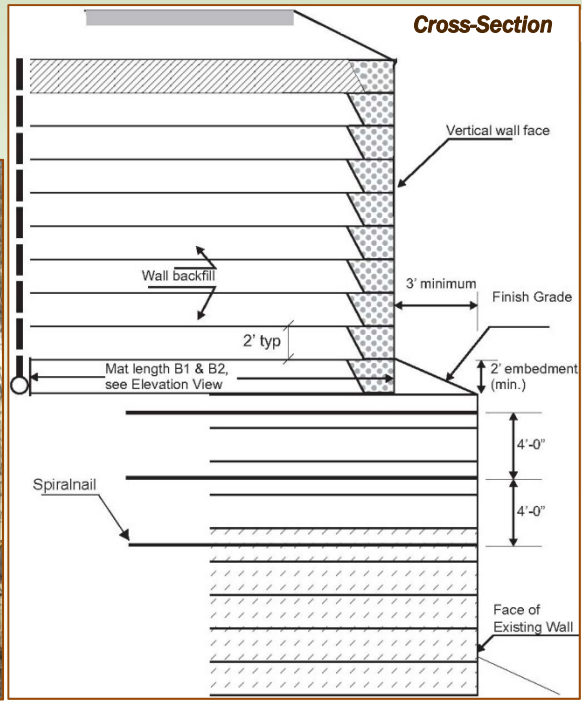
Project Example 1 – Increased Height & Loading

Project Information

Lot 121 Deer Crest-Pichinson Residence, Park City, Summit Co, UT. Shipped: Oct. '07. Owner: Private. Products: 2208 SF of Welded Wire Wall & 96 EA Spiralnails, 21' long, Non-Galvanized. Loads: 250 psf. Contractor: Baker Construction. Engineer: Geotechnical Design Systems

Background / Challenge

Walls for a private residence were installed in 1997-2000. About 10 years later, Hilfiker was contacted by the Contractor who needed to put an additional 20' tall wire wall on top of an existing wall (with a max tiered wall height of 46').



Spiralnail Solution

For additional reinforcement, Spiralnails were installed in the existing wall to account for the load of the new wall.

Project Example 2 – Repair to Existing Panel Walls

Project Information

SR-114 Geneva Road, Orem, UT. Shipped: Jul. '12. Products: 20 EA Spiralnails, 16 - 26' long, Hot Dip Galvanized. Loads: supplemental load requirements for each concrete precast panel range from 4 - 21.3 kips. Contractor: Slaton Bros.

Background / Challenge

After installation of an MSE precast panel wall system, a potential structural problem compromised the safety factor.

Spiralnail Solution

As a pre-emptive measure to restore the safety factor, Hilfiker supplied Spiralnails that were installed through the face of the panels to mitigate the problem and provide supplementary reinforcement.

Project Example 3 – Extended Design Life of Existing Walls

Project Information

Mine Crusher Walls, Colorado. Shipped: '94, '01 & Sept. '13. Products: ~32,000 SF of Welded Wire Walls (max height of 106', 8-yr design life) & 134 EA Spiralnails, 16-24' long, Non-Galvanized (spaced 3' vertically & 4-8' horizontally). Loads: 777 B & 992 C CAT, 162 ton GVW truck. Contractor: EarthTech West Ltd.

Background / Challenge

In 1994, a Hilfiker Welded Wire Wall for a crusher was constructed at site. 17 years later (9 years *after* the end of its design life), a 2011 design analysis determined that corrosive soil, as anticipated, would limit extending the future service life of the structure.

Spiralnail Solution

A Spiralnail system installed in Oct. '13 extended the service life an additional 20 years as required by the owner.

Project Example 4 – Corrected Construction Problems

Project Information

Blue Water Bridge Spiralnail Repair, Port Angeles, Clallam County, WA. Shipped: May '08. Owner: County of Clallam Public Works Dept. Products: 2,544 SF of Wiretruss Wall & 159 EA Spiralnails, 8 - 12' long, Non-Galvanized. Engineer: Clallam County Road Dept.

Background / Challenge

A Welded Wire Wall was built out of tolerance, both vertically and horizontally, which resulted in an unhappy Owner and Engineer who could not sign off on the guardrail design due to the poorly constructed wire wall.

Spiralnail Solution

Hilfiker provided a Spiralnail-Wiretruss system in front of the wire wall to straighten the alignment. Construction was completed by the contractor's bonding company.

Project Example 5 – Extended Design Life of Existing Walls

Project Information

Mine Crusher Walls, Utah. Shipped: Jul. '11. Products: 53,312 SF of Welded Wire Walls (double-tiered, crusher pocket, max height of 62', 20-yr design life) & 500 EA Spiralnails, 25' long, Black/Non-Galvanized.
Loads: Walls 1 & 3 designed for CAT 797F mine dump trucks, Wall 4 designed for temporary construction load consisting of the Lampson Crawler Transporter carrying the crusher. All walls designed for a snow load of 52 psf. Contractor: Ames Construction, Inc.

Background / Challenge

During construction of the Welded Wire Walls, further backfill material testing done by the Owner determined that the soil was too reactive and did not comply with the specifications as designed.

Spiralnail Solution

As a preemptive measure to counter the possible effects of accelerated corrosion, Hilfiker was asked to provide Spiralnails to extend the design life of the crusher wall, and did so within a week!


Installed / Finished Wall

About Hilfiker Retaining Walls

Hilfiker Retaining Walls is a fourth-generation, family-owned business operating in Eureka, CA since 1902. We produce a full line of high quality retaining wall systems that have been utilized in projects around the world, and offer engineering and design services as well as on-site technical assistance to aid in quality initiation of construction.

Other Hilfiker products / systems include:

- ArtWeld Gabions
- Trinity Baskets
- Eureka Reinforced Soil (E.R.S.)
- *Welded Wire Wall (WWW)
- Gabion-Faced MSE Wall
- Cribwall
- Reinforced Soil Embankment (R.S.E.)
- Steepened Slope

*The WWW system is the state-of-the-art industry leader of M.S.E. walls, which is used for truck dump applications, regardless of height and loading, and to support haul roads or buildings.

For more information, visit our website at www.hilfiker.com or contact our office at 800-762-8962.

DESCRIPTION OF PHOTOS ON FRONT COVER: These two projects were not 'solutions to existing walls,' but were instead original construction at poor access/cut sites. **TOP RIGHT** - Orchard Glen Project Tract No. 31955, Corona, Riverside Co, CA. Owner(s): State of CA Dept. of Fish & Game / Orchard Glen Estates / Standard Pacific Homes. Products: 130 CY of ArtWeld Gabions, 9ga. CG & 65 EA (1170 SF) Spiralnails, 13'-20' long, HD Galvanized. **BOTTOM LEFT** - North Hill Access Road Slope Stabilization Design, Mossyrock Dam, Lewis Co, WA. Owner: City of Tacoma Public Utilities. Products: 90 EA Spiralnails.