

KEYSTEELTM

SQ FT PANEL SYSTEM



SQ FT
KEYSTEEL
PANEL SYSTEM
BY CONTECH



CONTECH
CONSTRUCTION PRODUCTS INC.

For the Most Demanding Projects – When Performance Matters



The KeySteel SQ FT Panel System is a high performance retaining wall system constructed with the durable and aesthetic KeySteel SQ FT panels and KeyStrip in-extensible (steel) soil reinforcement. KeySteel SQ FT Panel System combines the ease of construction of a segmental block retaining wall system with the performance of a traditional large panel MSE retaining wall; resulting in an extremely stable, aesthetically appealing and cost-effective retaining wall structure. KeySteel SQ FT Panel System was designed, specifically, for use with highway and heavy construction projects.



Classic Straightface

8"h x 18"w x 12"d
(203 x 457 x 305 mm)



Sculptured Rockface

8"h x 18"w x 12"d
(203 x 457 x 305 mm)

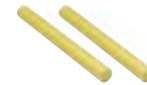
KeySteel™ KeyStrip

Available in Lengths from 8' to 60'



Galvanized Steel Connection Pins

9/16" x 8"
(14.3 x 203 mm)



Keystone® Fiberglass Connection Pins

1/2" x 5 1/4"
(12.7 x 133mm)

US 395, Spokane, WA

HITEC reviewed HITEC CERF Report #40478. Aug 2000

KeySteel SQ FT is designed and manufactured to meet current AASHTO LRFD specification.

Features, Benefits & Applications

Durable Components

- Design life of 75 years for typical structures, and up to 100 years for critical structures.

Aesthetic Appeal

- Variety of color, texture and pattern options.

Design Flexibility

- Easily accommodates curves, corners and unique geometries.

Cost-Effective Results

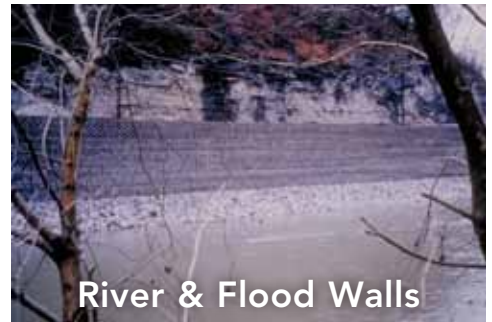
- Comparable cost-effectiveness of SRW with the strength and reliability of MSE walls.

Handles the Most Demanding Projects

- Wall deflections of KeySteel SQ FT walls are 3x less than geosynthetic reinforced walls.

Ideal Applications:

- River & Flood Walls
- Bridge Abutments
- Rail Transportation
- Roadway Support
- Headwalls & Wingwalls



River & Flood Walls



Bridge Abutments



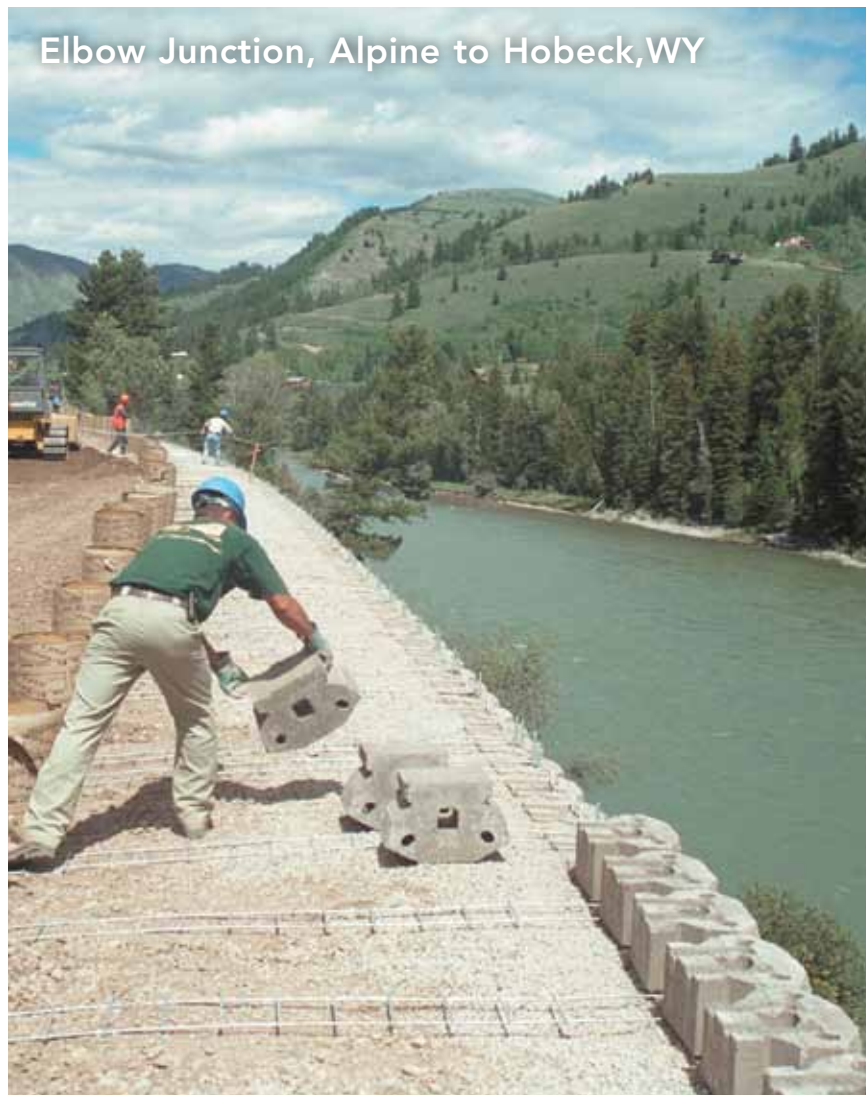
Rail Transportation



Roadway Support



Headwalls & Wingwalls



Elbow Junction, Alpine to Hobeck, WY

KeySteel™ SQ FT Panel System Performance



KY92 Bridge over I-75, Whitley County, KY

KeySteel™ SQ FT Panel System vs. Large Panel Systems (MSE)

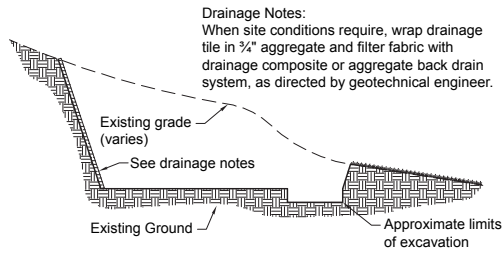
- Cost effectiveness of Segmental Retaining Walls (SRW) with the strength and reliability of Mechanically Stabilized Earth (MSE) walls.
- Replaces the logistics of handling multi-piece precast panels, eliminating job site delays due to damaged or miscast panels, or a change in the project construction path.
- Follows top & bottom grade lines closer than large panels, reducing average wall heights; thereby reducing wall area, reinforcement length, foundation excavation & disposal, and reinforced fill quantity.
- Provides labor cost savings through the use of smaller crews and the economies of unskilled workers.
- KeySteel SQ FT panels do not require the use of cranes; they can be staged with skid steer- sized equipment and hand placed.
- Creates a more flexible facing system, handling most foundation settlements without employing slip joints.
- KeySteel SQ FT panels easily allow for curvilinear wall geometry.
- The KeySteel flexible wall face is capable of tolerating backfill down drag forces and minor differential settlement without breakage, eliminating the need for bearing pads and wedging.
- No need for special panel fabrication; KeySteel SQ FT panels can be field cut and hand placed to match protrusions through the facing.

Inextensible KeySteel™ SQ FT Panel System vs. Extensible Reinforcement (SRW)

- Cost competitive as Segmental Retaining Walls (SRW) with the strength and reliability of steel reinforcement.
- KeySteel KeyStrips allow heavy loads to be carried at low strains without long-term creep deformation problems (cracked pavements, moved superstructures, etc...).
- Superior ease and speed of installation, compared to extensible reinforcement.
- Eliminates geogrid “roll-up” due to HDPE memory.
- Eliminates pre-tensioning and anchorage of geogrid.
- Positive mechanical steel pin connection system eliminates facing unit and geogrid separation during backfill and compaction efforts.
- Partial coverage of reinforcement allows KeySteel KeyStrip to skew around obstructions.
- Connection capacity of KeySteel KeyStrip to KeySteel SQ FT panel is more than 4X that of geogrid connections.
- Maintains vertical wall alignment with inextensible vs extensible reinforcement.
- Backfill cost significantly reduced using 4 inch stone vs 3/4 inch max allowable gravel with geogrid reinforcement.

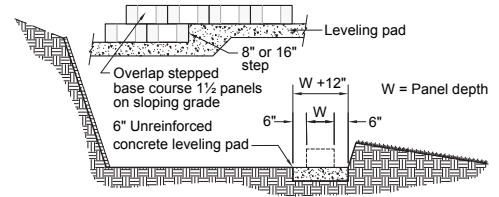
KeySteel™ SQ FT Panel System Construction Sequence

STEP 1



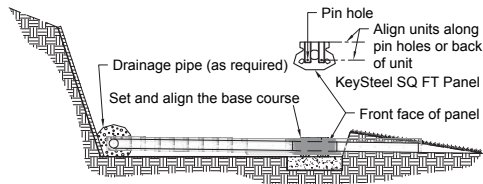
EXCAVATION

STEP 2



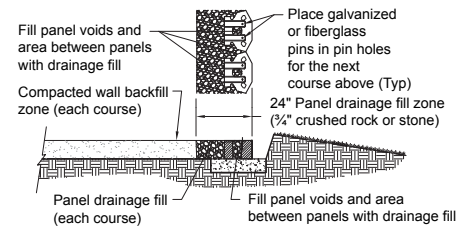
PLACE LEVELING PAD

STEP 3



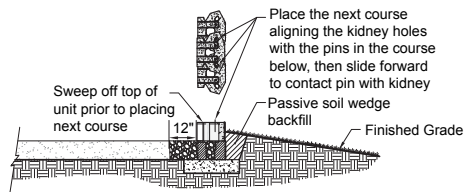
PLACE AND ALIGN BASE COURSE / DRAINAGE

STEP 4



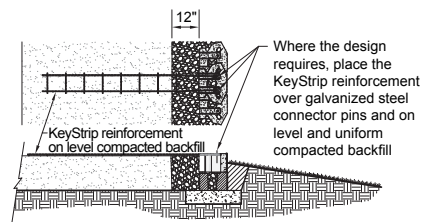
PLACE PINS, PANEL / DRAINAGE MATERIAL, COMPACTED BACKFILL

STEP 5



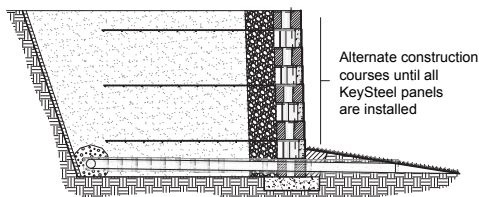
COREFILL AND BACKFILL

STEP 6



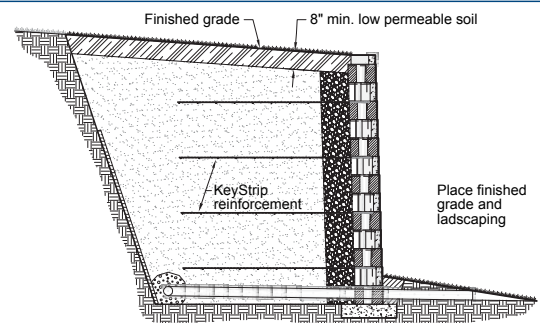
PLACE REINFORCEMENT, AS REQUIRED

STEP 7



ALTERNATE CONSTRUCTION COURSES

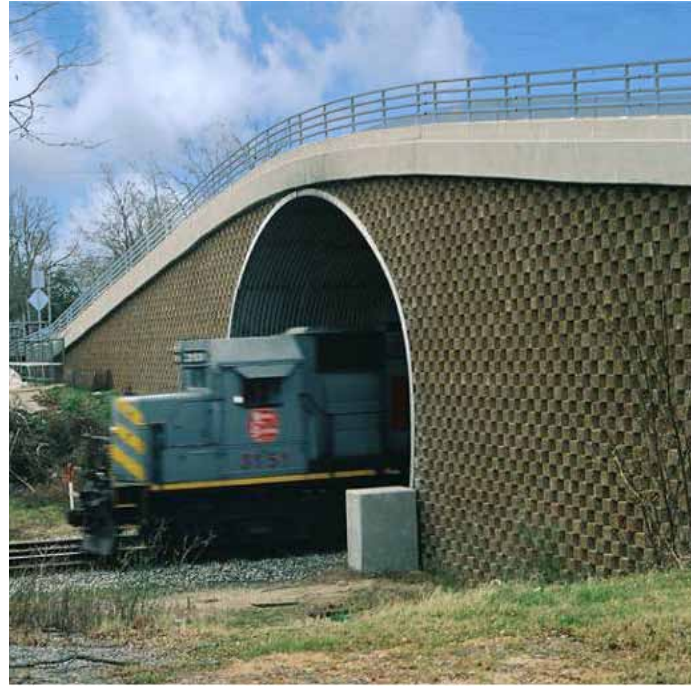
STEP 8



KEYSTEEL FINISHED GRADE

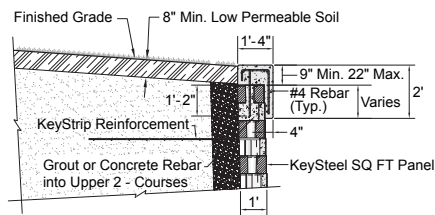
Design Flexibility Creates Value

- Copings, impact barriers, railing options, construction slip joints, curves and corners are all possible design elements with KeySteel SQ FT Panel System; without the need and expense of specialized moldings and custom fabrication.
- KeySteel SQ FT Panel System is the right choice for tall wall applications. KeySteel SQ FT Panel System has successfully been used to construct walls with heights up to 65 ft. (15 m) and a variety of heavy loading conditions.
- Seismic design loads are easily factored into the KeySteel SQ FT Panel System design analysis. The semi-flexible (MSE) system handles seismic events better than more rigid systems. KeySteel SQ FT Panel System structures have a proven track record of high performance, withstanding seismic events in the Pacific Rim and Western United States without failure or significant detrimental effects on the wall structure.
- KeySteel SQ FT Panel System is an ideal end treatment for CONTECH Structural Plate and Box Culvert installations due to its inherent modular design. The KeySteel SQ FT panel can be field modified to follow the curvilinear shape of arches; eliminating the need for custom forming or specialty precast panels.

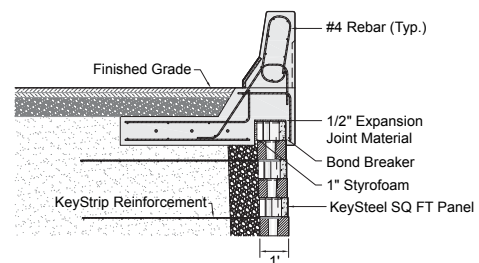


Top of Wall Options

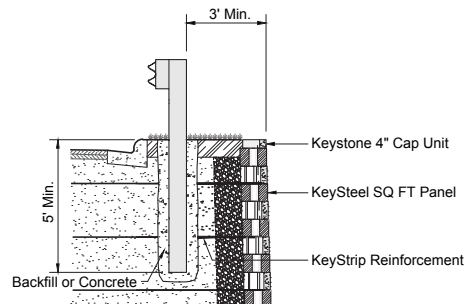
CIP COPING



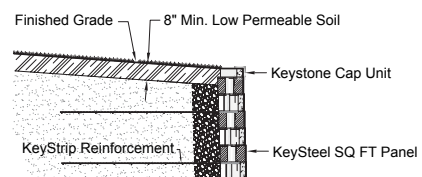
BARRIER



GUARDRAIL



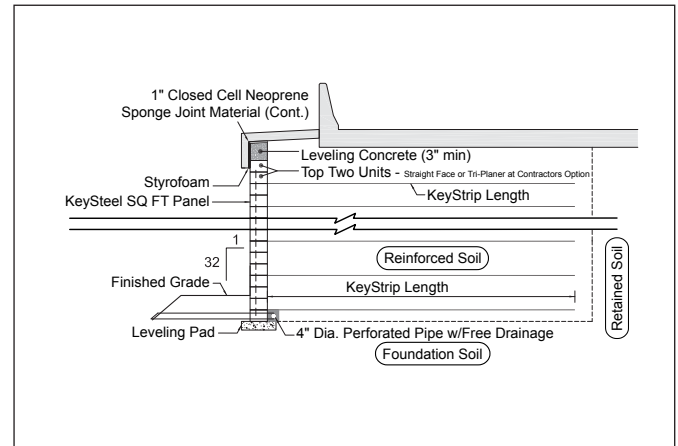
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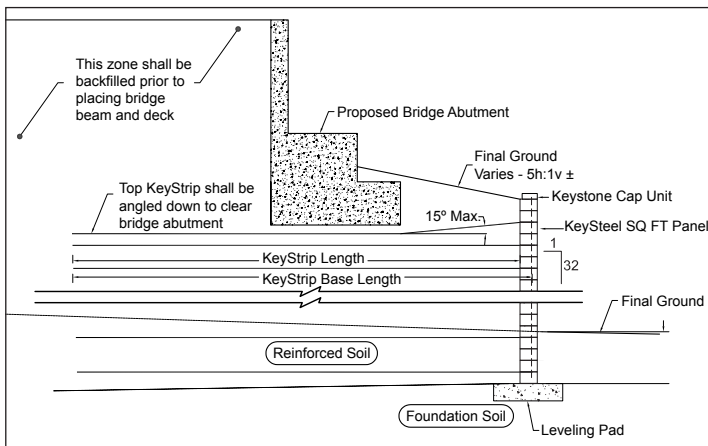
A Strong, Structural Solution

The strength and performance of a retaining wall system is an obvious top consideration for wall specifiers and designers. KeySteel SQ FT Panel System is one of the strongest and most durable retention solutions available. KeySteel SQ FT Panel System features patented concrete units that are manufactured to meet all AASHTO standards. The units are dry stacked and interlocked vertically and horizontally, using high-strength fiberglass pins and galvanized steel pins, to create a mechanically interlocked facing system.

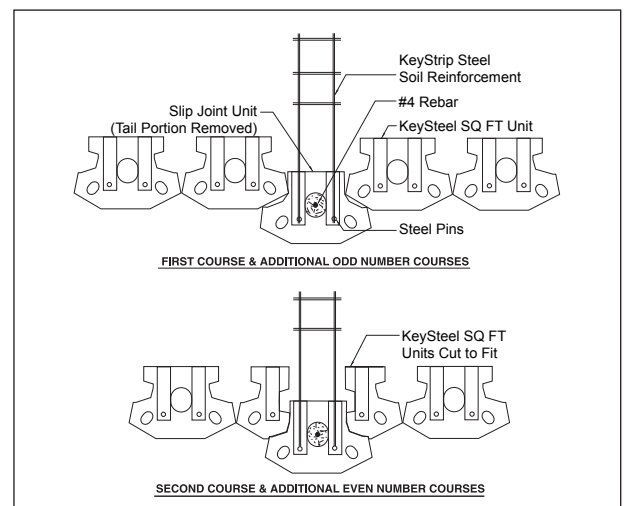
Heavy Loads



Bridge Loads



Slip Joint Details



The CONTECH Advantage



We know retaining walls.

With more than 25 years at the forefront of the industry, Keystone Retaining Wall Systems, Inc., a CONTECH Company, continues to set the standard for excellence and innovation within the segmental retaining wall industry. Keystone represents the global benchmark in soil retention, erosion control and landscape systems. Holding numerous patents, Keystone symbolizes cutting-edge design, performance and aesthetics.

We are your partner.

When KeySteel SQ FT Panel System is specified, a complete retaining wall system is engineered and supplied to meet site-specific conditions. In addition, CONTECH ensures the timely arrival and sequencing of materials for construction. CONTECH is your single source supplier: design support, KeySteel SQ FT Panel units, KeySteel KeyStrips, galvanized steel and fiberglass connection pins.

CONTECH has representatives in your area to help assist in planning, design and installation.

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