These generic pedestrian guard and fence details show a few potential options for their installation on the top of a Redi-Rock retaining wall. It is the design engineer’s responsibility to fully design and detail the connection of the guard posts to the retaining wall blocks and assure acceptable resistance to the applied forces. Redi-Rock blocks are plain concrete, without steel reinforcement.
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This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.
ATTACH FLANGE MOUNTED FENCE POSTS TO CAP UNIT WITH CONCRETE ANCHOR BOLTS (RED HED TRU-BOLT WEDGE ANCHORS OR EQUAL)

SET CAP BLOCK ON TOP F-HC UNIT AND EMBED STEEL REINFORCEMENT IMMEDIATELY AFTER PLACEMENT OF CAST-IN-PLACE CONCRETE

CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMPRESSIVE STRENGTH MIN 4,000 psi

No. 8 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL, BOTH SIDES OF CENTER CORE

No. 8 VERTICAL BARS, 11 7/8" O.C., TYPICAL, BOTH SIDES OF CENTER CORE

No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK

RECESSED LIFTING HOOK AREA FILLED WITH CAST-IN-PLACE CONCRETE (WHEN FREESTANDING BLOCKS ARE FILLED)

COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEORGRID WITH 6 m VISQUEEN PLASTIC LAYER

NO. 57 STONE INFILL IN VERTICAL CORE SLOT BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS. FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.

ALL REINFORCING STEEL TO CONFORM TO ASTM A706 OR AASHTO M31 GRADE 60.
ALL REINFORCING STEEL TO CONFORM TO ASTM A706 OR AASHTO M31 GRADE 60.

BEND DETAIL
NO. 3 REBAR HOOKS

ATTACH FLANGE MOUNTED FENCE POSTS TO CAP UNIT WITH CONCRETE ANCHOR BOLTS (RED HED TRU-BOLT WEDGE ANCHORS OR EQUAL)

SET CAP BLOCK ON TOP F-HC UNIT AND EMBED STEEL REINFORCEMENT IMMEDIATELY AFTER PLACEMENT OF CAST-IN-PLACE CONCRETE

CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMpressive strength = 4,000 psi

No. 6 VERTICAL BARS, 11 1/2" O.C., TYPICAL, BOTH SIDES OF CENTER CORE

No. 6 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL, BOTH SIDES OF CENTER CORE

No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK

END VIEW
CAP BLOCK CAST WITH R-ANCHORS (SPECIALTY BLOCK)

COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEOGRID WITH 6 mIL VISQUEEN PLASTIC LAYER

NO. 57 STONE INFILL IN VERTICAL CORE SLOT, BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS. FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.
CAST-IN-PLACE CONCRETE IN HOLLOW CORE OF F-HC UNITS AND IN TOP HALF OF VERTICAL CORE SLOT IN PC BLOCKS IMMEDIATELY BELOW F-HC BLOCKS, MINIMUM 28 DAY COMpressive STRENGTH = 4,000 psi

No. 6 HORIZONTAL BARS, CONTINUOUS, 24" OVERLAP ON ENDS TYPICAL, BOTH SIDES OF CENTER CORE

No. 6 VERTICAL BARS, 11 1/2" O.C. TYPICAL, BOTH SIDES OF CENTER CORE

No. 3 BAR HOOK - WRAP AROUND LIFTING INSERT IN TOP OF BLOCK AND EXTEND INTO HOLLOW CORE AREA OF F-HC BLOCK

RECESSED LIFTING HOOK AREA FILLED WITH CAST-IN-PLACE CONCRETE (WHEN FREESTANDING BLOCKS ARE FILLED)

COVER TOP OF RETAINING BLOCKS AND ALL EXPOSED GEOSGRID WITH 6 mil VISQUEEN PLASTIC LAYER

NO. 57 STONE INFILL IN VERTICAL CORE SLOT, BETWEEN ADJACENT BLOCKS, AND 12" BEHIND BACK OF BLOCKS. FILL BOTTOM HALF OF VERTICAL CORE SLOT FOR PC BLOCKS IMMEDIATELY BELOW FREESTANDING BLOCKS.

ALL REINFORCING STEEL TO CONFORM TO ASTM A706 OR AASHTO M31 GRADE 60.
Typical Gravity Wall Section with Freestanding Hollow Core Coping

Cap block cast with R-anchors

F-HC block

Setback = 1 3/8" (41 mm)
(5" Wall Bearer Angle)

Cast-in-place concrete and reinforcing steel

Hook engaged with lifting insert of retaining block

Grade to drain surface water away from wall

PC retaining block (Typical)

Move blocks forward during installation to engage shear knobs (Typical)

Infill stone (No. 57 or equivalent)
Fill between adjacent blocks (all blocks)
Fill vertical core slot (PC blocks)
Stone to extend at least 12" (305 mm) behind blocks.

Non-woven geotextile fabric (if specified by Engineer based on site soil conditions)

Backfill per design requirements. Install in lifts and compact per project specifications.

Middle block (Typical)

Solid bottom block

Drain (As specified by Engineer)

Leveling pad (As specified by Engineer)

Exposed wall (Height varies with design)

Bury depth

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CAST-IN-PLACE COPING

NON-WOVEN GEOTEXTILE OR GEOEMBRANE BARRIER BETWEEN CAST-IN-PLACE COPING AND TOP OF WALL (TYP.)

CAST IN PLACE COPING (DESIGN BY OTHERS)

REINFORCEMENT (DESIGN TO PROJECT REQUIREMENTS)

GROUND

30" FACE (TYP.)

5" (TYP)

HEIGHT VARIES ALONG WALL 14" (MIN) TO 32" (MAX)

SECTION A-A
(JUST BEFORE STEP DOWN ON TOP OF WALL)

SECTION B-B
(JUST AFTER STEP DOWN ON TOP OF WALL)

LENGTH OF COPING SECTIONS VARIES

EXPANSION JOINT MATERIAL BETWEEN COPING SECTIONS

ELEVATION VIEW

Cast-In-Place Wall Coping
Freestanding Blocks with Cap at Top of Wall

Secure cap block to freestanding block with polyurethane sealant. Optional shear lugs cast into cap block or rebar ties that can be embedded in site-cast concrete (with garden block) are also available.

Setback = 0" (0 mm) on Freestanding blocks

Setback = 2 7/8" (73 mm) when 10" (254 mm) knob used
Setback = 1 5/8" (41 mm) when 7 1/2" (190 mm) knob used
Setback = 1 5/8" (41 mm) when 10" (254 mm) knob used

Retaining blocks
Freestanding blocks

(Optional) Freestanding blocks can be secured to retaining blocks with J-Bolt connection

Front View

Freestanding blocks used where block is exposed and textured surface is required on both sides of wall

Back View

One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5") (38 mm) diameter round "hersey kiss" shaped dollops located in two rows at the top of the Freestanding blocks at 8" (203 mm) on center.

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Cap Block, Secure to Freestanding Block with Polyurethane Sealant, or Optional Rebar Embedded in Concrete

Freestanding Garden Block with Two (2) Continuous Reinforcing Bars, Filled with Cast-in-Place Concrete, as Designed by Wall Design Engineer

Freestanding Wall Blocks

Retaining Wall Blocks

Section View

Sealant Adhesive: One-component, highly flexible, non-priming, gun grade, high performance elastomeric polyurethane sealant shall have movement of plus or minus 25% per ASTM C719, tensile strength greater than 200 psi (1.4 MPa) per ASTM D412, and adhesion to peel on concrete greater than 20 PLI per ASTM C794. Apply sealant in one and one half-inch (1.5\) (38 mm) diameter round “hersey kiss” shaped dollops located in two rows at the top of the Freestanding blocks at 8” (203 mm) on center.

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Cast-in-Place Moment Slab Traffic Barrier - Flat Grade Installation

Expansions joints shall be provided in moment slab every 90'-0" (27.4 m). Expansion joint shall be dot standard detail. Typical features shown for reference.

Contractions joints shall be provided in moment slab every 30'-0" (9.1 m) between expansion joints. Contraction joint shall be dot standard detail. Typical features shown for reference.

Materials:
Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength shall be 4,000 psi (27.6 mpa) or higher as specified. Reinforcing steel shall conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design:
Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment slab reinforcement shown is based on AASHTO LRFD Bridge Design Specifications, 5th edition, 2010, TL-4 loading detailed in Table A13.2.1.

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Cast-in-Place Moment Slab Traffic Barrier - Sloping Installation

Steel ties per traffic barrier design
#4 (#13) bars at 6" (152 mm) O.C. minimum

Cast-in-place traffic barrier
(Texas T551 railing shown)

Cast-in-place moment slab
30'-0" (9.1 m) Sections

#5 (#16) bars at 8" (203 mm) O.C., top and bottom

8'-0" Minimum

2" (51 mm) cover

Pavement

1-0" (305 mm) minimum

2'-10" (864 mm)

3" (76 mm) cover

AASHTO No. 57 stone

Transverse reinforcement #4 (#13) bars at
11.5" (292 mm) O.C., top and bottom

Dowels at contraction and expansion joints

1" (25 mm) Expanded polystyrene foam
(Low density, 0.75 lb/ft³, 0.12 kN/m³)

Expansion joints shall be provided in moment slab every
90'-0" (27.4 m). Expansion joint shall be dot standard
detail. Typical features shown for reference.

Formation joint with low modulus, hot-poured,
rubber-asphalt joint
sealing compound

Expansion cap

EXPANSION JOINT

1½" (38 mm) dia. x 18" (457 mm)
A36 galvanized or epoxy coated
smooth dowel bar centered
vertically in slab at 12" (305 mm)
O.C. along expansion joint

Sawed joint with hot-poured,
rubber-asphalt sealant

Provide grease or sleeve
bond breaker on one side

CONTRACTION JOINT

1½" (38 mm) dia. x 18" (457 mm)
A36 galvanized or epoxy coated
smooth dowel bar centered
vertically in slab at 12" (305 mm)
O.C. along expansion joint

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength
shall be 4,000 psi (27.6 mpa) or higher as specified. Cast-In-Place level up concrete shall be manufactured in accordance with
ASTM C94. Minimum 28 day compressive strength shall be 3,500 psi (24.1 MPa) or higher as specified. Reinforcing steel shall
conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment
slab reinforcement shown is based on AASHTO LRFD Bridge Design Specifications, 6th edition, 2010, TL-4 loading detailed in
Table A13.2.1.

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conditions of the proposed site.

Materials

Concrete for cast-in-place barrier and moment slab shall be dot standard structure mix. Minimum 28 day compressive strength
shall be 4,000 psi (27.6 mpa) or higher as specified. Cast-In-Place level up concrete shall be manufactured in accordance with
ASTM C94. Minimum 28 day compressive strength shall be 3,500 psi (24.1 MPa) or higher as specified. Reinforcing steel shall
conform to ASTM A706 or AASHTO M31 Grade 60 (420 MPa).

Design

Moment slab shown is dimensioned based on an equivalent static load of 10,000 lbs (44.5 kN) per NCHRP Report 663. Moment
slab reinforcement shown is based on AASHTO LRFD Bridge Design Specifications, 6th edition, 2010, TL-4 loading detailed in
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conditions of the proposed site.
Top of Wall Step Options

Stack bricks under back corner of Corner Garden block to keep block supported prior to backfilling.

Grade drops along back and end of Corner Garden block.

Alternate Garden Block Placement

Sawcut and remove inside edge of Corner Garden block and fill with topsoil (Recommended).

Grade drops along side of Corner Garden block.

Top block

Middle block

Corner Garden block at end of each row (Typical)

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Top of Wall 9" (230 mm) Stepdown Blocks

Freestanding block or Top Retaining block (Typical)

Freestanding Corner block (Typical)

9" (230 mm) Stepdown block (Garden insert optional)

Sawcut and remove inside edge of Corner Garden block and fill with topsoil (Optional)

Field cut stepdown block to length (if needed)

Middle Block with no knobs (Typical) (Specialty block / Non-inventory item)

Retaining blocks (Typical)

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Drainage Swale Options

Grass Swale

Concrete Swale

Grade swale cross-slope to provide 1% to 2% (minimum) fall parallel to wall

Grade swale around blocks in step down areas

Rock check dams as required

Drainage Swale Behind Wall

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