Gravity Walls
Reinforced Walls
Freestanding Walls
Steps, Caps, and Columns
What is a PMB?
Precast Modular Block PMB

- Wet-Cast, First Purpose Concrete
- Minimum Compressive Strength (4,000 psi)
- Freeze Thaw Durability (ASTM C666)
- Machine Placed

C1776 / C1776M - 17
Textures

Ledgestone

Cobblestone

Limestone

Kingstone
Custom Textures
Redi-Rock blocks are like a one-ton Lego …

5.75 square feet (0.5 square meters) of face

Architectural-grade precast concrete

Versatility

Superior aesthetics

2240 pounds | 1015 kilograms
Redi-Rock
Standard Gravity Retaining

Standard Weight
1,500 – 3,500 lbs

Standard Depths
28”, 41”, and 60”

Face Dimensions
18” x 46 1/8”
5.75 square feet of face
Multiple Batter Options

- Standard Setback
- Vertical Setback
- 9-inch Setback
- Planter Setback
Standard Setback
9-Inch
Planter Setback
Redi-Rock Footprint 2020 - 16 Countries
Types of PMB Walls
Gravity Walls
Gravity Retaining Walls

**TOP BLOCK**
- Weight: 1225 lbs.
- 46” x 28” x 18” High
- 5.75 sq. ft. of face

**MIDDLE BLOCK**
- Weight: 2400 lbs.
- 46” x 41” x 18” High
- 5.75 sq. ft. of face

**BOTTOM BLOCK**
- Weight: 2500 lbs.
- 46” x 41” x 18” High
- 5.75 sq. ft. of face
Unique, Non-Reinforced Solution

REDI-ROCK

VS.

EVERYONE ELSE

NO GEORGRID OR TIE-BACKS IN MANY APPLICATIONS

LEGS SETBACK TO PROPERTY LINE

HEIGHT

REDI-ROCK™

MORE SETBACK TO PROPERTY LINE

HEIGHT

geogrid

most competition
Redi-Rock
Standard Gravity Retaining

10 BLOCK HIGH SECTION
(1) 20" (508 mm) Blocks
(4) 41" (1000 mm) Blocks
(3) 60" (1524 mm) Blocks

Grade to drain surface water away from wall

Setback = 1 1/2" (41 mm)
5" Wall Saturate Angle

Top block

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

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

- Fill between adjacent blocks (all blocks)
- Fill vertical core slot (PC blocks)
- Stone to extend at least 12" (305 mm) behind blocks.

Middle block (Typical)

Nonwoven geotextile fabric (if specified by Engineer based on site soil conditions)

Drain (As specified by Engineer)

Standard Setback
Vertical Setback
9-inch Setback
Planter Setback
Redi-Rock XL
Gravity Retaining Walls

Standard Weight
3,500 – 4,900 lbs

Standard Depths
52”, 72”, 96”

Face Dimensions
3’ x 46 1/8”
11.50 square feet of face
Redi-Rock XL
Gravity Retaining Walls

25’ Plus
Redi-Rock XL

Gravity Retaining Walls

Drainage occurs through the Block vs. Behind the Wall
John C. Tune Airport
Nashville, Tennessee

25.5’
Reinforced MSE Walls
Miragrid XT Geogrid

- 100% corrosion resistant
- Polyvinyl chloride (PVC) coated high tenacity polyethylene terephthalate (PET)
- 12” custom roll width
- Tensile Strengths: 4,700 - 27,400 lb/ft (5XT – 24XT)
Navigate Utilities
Combination Gravity / MSE
Combination Gravity / MSE
Freestanding Walls
Redi-Rock
Freestanding / Hollow Core

**Standard Weight**
- Solid: 1,200 lbs
- Hollow Core: 770 - 913 lbs

**Standard Depths**
- 24”

**Face Dimensions**
- 18” x 46 1/8”
- 5.75 square feet of face
CONCEPTUAL FLOOD CONTROL WALL

Place Vertical Rebar as Specified in Design Plans in Rebar Spacers Cast in the Block

Redi-Rock Cap

Water Surface (Elevation varies)

Place Horizontal Rebar as Specified

Infill Wall with Concrete (Strength as Specified by Engineering Documents)

Bury Depth

Freestanding Hollow Core Block (F-HC)

Install Waterstop at the Center of the Block

Place Vertical Footing Rebar as Specified

Footing Dimensions per Site Specific Design

Rebar as Required per Footing Design

NOTE: Degree of water tightness depends on many factors. Slight seepage through joints can be expected using standard construction practices. See www.Red-Rock.com for more information on flood control walls including detailed notes from full scale demonstration project testing.

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. Final wall design must address both internal and external drainage and all modes of wall stability.
TYPICAL CANTILEVER WALL SECTION

Redi-Rock Freestanding Hollow Core Block (F-HC)

Exposed wall (height varies with design)

Concrete infill (As specified by Engineer)

Vertical and Horizontal Rebar (As specified by Engineer)

Drain (As specified by Engineer)

Reinforced concrete footing (As specified by Engineer)

Footage thickness

Bury depth

Footage width

Unsoaked area

Redi-Rock Cap (If desired)

Grade to drain surface water away from wall

Drain stone (No. 20 or equivalent)

Baffle plate for design requirements. Install in fall and connect per project specifications.

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

All reinforcing steel to conform to ASTM or ACI 408.1 Grade 60

ALL REINFORCING STEEL TO CONFORM TO ASTM OR ACI 408.1 GRADE 60

17/32" WIRE MESH (18" X 18"

17/32" WIRE MESH (18" X 18"

#2 WIRE MESH (18" X 18"

ALL WIRE MESH TO BE TIED TO REINFORCING STEEL AT 24" O.C.

ATTACH PLAIN UNMOUNTED STONE BLOCKS TO WALL UNIT WITH CONCRETE AND HANGER BOLTS. USE PLUGS AND WEDGE ANCHORS OR EQUAL. SET PRICE MANUFACTURER RECOMMENDATION INSTALLATION PROCEDURES

CAST SURFACE COMPOSITE CORE IN HOLLOW CORE OF F-HC UNITS AND TO TOP 1/2 OF VERTICAL CORE SLUG IN PC UNITS. MINIMUM 28 DAY COMPRESSIVE STRENGTH - 4,000 PSI

F-HC BLOCKS ARE FABRICATED WITH A 1 1/2" CORE, WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

COVER TOP OF RETAINING BLOCKS WITH 4 ML WOOLLEN ROAD BRIEFS

REDI-ROCK LOGO

FREE STANDING HOLLOW CORE REINFORCEMENT DETAIL

SCALE TONE

11

FREE STANDING HOLLOW CORE REINFORCEMENT DETAIL

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FREE STANDING HOLLOW CORE REINFORCEMENT DETAIL

SCALE TONE

11
Flood
Conceptual Flood Control Wall

NOTE: Degree of water tightness depends on many factors. Slight seepage through joints can be expected using standard construction practices. See www.Redi-Rock.com for more information on flood control walls including detailed notes from full scale demonstration project testing.
Optional Base Details for Flood Control Walls
Water Stop Options
Revetment / Water
Conceptual Seawall Detail

Grade to drain surface water away from wall

Armor stone as specified by local Professional Engineer

Drainstone (AASHTO No. 57 or Equivalent)

Non-woven geotextile fabric

Block widths and setbacks vary with design

Water surface (Elevation varies)

Blocks to extend below long term scour depth determined by local Professional Engineer based on site-specific conditions

Notes:
- Use ASTM No. 57 stone (or as specified by local Professional Engineer) to infill between blocks.
- Preliminary wall height charts do not apply and should not be used for walls in water applications due to the variety of site-specific variables.
- Contact your local Professional Engineer for specific details and final design.
- Walls may require geogrid reinforcement.
- Refer to final engineering plans.
Large setback gravity retaining wall blocks with 9¾ inch (230mm) setback (shown) or optional 16¾ inch (422mm) filled trough planter blocks.

Armor stone as specified by local Professional Engineer to be placed on non-woven geotextile fabric.

Ground Surface (Slope Varies)

Water Surface (Elevation Varies)

ASTM No. 57 drainstone to extend at least 12” behind wall (Final depth below and behind wall to be determined by local Professional Engineer based on site specific conditions)

Non-woven geotextile fabric

Drain as designed by local Professional Engineer to meet site specific requirements

Blocks to extend below long term scour depth determined by local Professional Engineer based on site specific conditions

NOTES:
- Both 9¾” (230mm) and 16¾” (422mm) (with filled trough) setback blocks could be considered for seawall applications
- Use ASTM No. 57 stone (or as specified by local Professional Engineer) to infill between blocks.
- Maximum wall height charts are not provided for walls in water applications due to the variety of site-specific variables. Contact your local Professional Engineer for specific details and final design.
- Walls may require geogrid reinforcement. Refer to final engineering plans.
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Steps, Caps & Columns
Engineering Resources
Detention Pond Walls for Hospital Expansion

Learn how engineers used Redi-Rock retaining walls on this Denver area hospital expansion project to combine two detention ponds on the property in order to create desperately needed parking space in a very limited construction area.
Redi-Rock : Engineering
Preliminary Height Guide
Provides Retaining Wall Design Options

Preliminary Height Guides

Choose your retaining wall specifications and then click 'Search'.

- Units: Imperial
- Wall Height: 6.00 Feet
- Soil Type: 
  - ϕ = 28° - Silty Sand, Clayey Sand
  - ϕ = 34° - Dense Well Graded Sand, Sand and Gravel
  - ϕ = 30° - Silty Sand, Fine to Medium Sand
  - ϕ = 28° - Silty Sand, Clayey Sand
  - ϕ = 40° over 26° - Crushed Stone Backfill Replacing Silty or Clayey Sand

- Load Conditions:
  - No Slope, No Surcharge
  - 250psf (12 kPa) Live Load Surcharge
  - 1:2.5 Slope

Still not finding what you are looking for?
Call a Redi-Rock engineer at 866-222-8400
Standard Batter

Standard batter gravity walls rely on the size and weight of each Redi-Rock block to literally hold back the earth. Wall cross-sections are optimized with the use of 28" (710 mm), 41" (1030 mm), and 60" (1520 mm) Redi-Rock blocks to provide the most efficient support possible at all elevations within the wall.

Large Batter

Large batter gravity walls utilize Redi-Rock 9" (230 mm) setback blocks which provide an average batter of 27.5°. Although large batter gravity walls require more room than walls constructed with standard setback blocks, they allow for significantly taller walls. Large batter walls also work great for select applications such as channelization projects.

PC System

Mechanically Stabilized Earth (MSE) walls combine Redi-Rock Positive Connection blocks and 12" (300 mm) wide strips of Mirafi XT geogrid soil reinforcement. The strips of geogrid wrap through a vertical core slot cast into the PC blocks, providing an industry-leading incredibly strong, weight independent connection. Redi-Rock PC System walls have been built to truly astounding heights and have been used to support massive surcharge loads.
DESIGN GRAVITY WITH FREEWARE
Redi-Rock Wall Software
Freeware and Professional versions
Redi-Rock Wall Software
Freeware and Professional versions

1. Starting Your Project
   The first video in the Redi-Rock Wall tutorial details the steps to start a new Redi-Rock Wall project.

2. Project Layout
   The second video in the Redi-Rock Wall tutorial overviews the general layout of the program.

3. Defining Geometry
   The third video in the Redi-Rock Wall tutorial gives an overview of the setting related to wall geometry.

4. Defining Soils
   The fourth video in the Redi-Rock Wall tutorial walks through defining soils for use in your project.

5. Setting Up the Footing
   The fifth video in the Redi-Rock Wall tutorial examines setting up the wall footing.

6. Assigning Soils & Terrain
   The sixth video in the Redi-Rock Wall tutorial examines defining and assigning soils.

7. Water & Surcharge
   The seventh video in the Redi-Rock Wall tutorial looks at the impacts of water and surcharge loads on the wall.

8. FF Resistance & Applied Forces
   The eighth video in the Redi-Rock Wall tutorial looks at Front Face (FF) Resistance and Applied Forces.

9. Earthquake Loads
   The ninth video in the Redi-Rock Wall tutorial overviews how to analyze earthquake loads in Redi-Rock Wall.

10. Results
    The tenth video in the Redi-Rock Wall tutorial examines program results.

11. Spread Footing
    The eleventh video in the Redi-Rock Wall tutorial shows how to use the Spread Footing module bundled with Redi-Rock Wall.

12. Stability
    The twelfth video in the Redi-Rock Wall tutorial shows how to use the Stability module bundled with Redi-Rock Wall.

13. Reports
    The thirteenth video in the Redi-Rock Wall tutorial examines reports that can be generated in Redi-Rock Wall.
Guide Specifications and Redi-Rock® Product Data Sheets

SPECIFICATIONS  PDF  WORD
GRAVITY SPECIFICATIONS PDF  WORD
XL SPECIFICATIONS  PDF  WORD
Key Design Characteristics

- Height
- Soil Quality
- Batter
- Surcharge
- Block Size/Weight
Installation
Case Studies
Case Study:
Building Homes on Hilly Lots

- ALABAMA BUILDER Chooses REDI-ROCK® TO CREATE USABLE SPACE FOR HOME CONSTRUCTION
- Tuscaloosa, AL
- Designed by Barganier Davis Sims
- Built in 2008
- The project included a total of three Redi-Rock walls. Two were reinforced to support the house, and the third wall was a gravity cut wall to make room for the driveway.
- The reinforced walls stood 30 feet (9.1 meters) at their highest point, and the gravity wall stood 12 feet (3.7 meters) at its highest point. But these impressive tall walls are not the focal point of this project. The most eye-catching portion is the spiral staircase created by two reinforced barrel walls.
- In total, the project required 9,500 square feet (882.6 square meters) of Redi-Rock.
Case Study: Building Homes on Hilly Lots
Case Study:
Unique Bridge Repair Using GRS

- MAINE BRIDGE USES FIRST GRS WALL IN A MARINE ENVIRONMENT
- Maine DOT Beach Bridge #169
- City of North Haven
- Designed by Maine DOT and TY Lin International
- Built in 2013
Case Study: Unique Bridge Repair Using GRS

Challenges:

- North Haven is an island located on the coast of Maine; all construction materials and equipment needed to be transported to the island by boat.
- The significant daily tidal fluctuations affected the duration of daily construction. At high tide, most of the abutments were actually under water.
- The town wanted to integrate an existing pier with the new bridge construction to minimize construction time and costs.
- Construction needed to be completed during the winter and early spring to minimize the impact on residents and fishermen.
- The wall had to withstand potential impact from the boats navigating the waterway.
Case Study: Unique Bridge Repair Using GRS

Solution:

• The solution was a Geosynthetic Reinforced Soil - Integrated Bridge System (GRS-IBS), completed as a joint effort of the town of North Haven and the Maine Department of Transportation.

• “The main difference between a GRS wall and a traditional, mechanically stabilized earth (MSE) abutment wall is that reinforcing fabric is used in much more closely spaced layers, and the fabric is not geogrid,”

• The existing bridge pier was reused to cut down on cost and time, which was important because the project needed to be completed during the winter and the spring. They were able to reuse the bridge pier by using lightweight concrete beams that were specified by the engineering team.
Case Study: Unique Bridge Repair Using GRS
Case Study Video- Louisville, KY
QUESTIONS