THE ESSENCE OF NATURAL ROCK

REDI-ROCK

See www.redi-rock.com for:

-Interface shear test reports

-Section drawings for conditions shown in preliminary design charts

41” BLOCK SERIES

Non-Reinforced Soil Walls with 41” wide blocks

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www.redi-rock.com

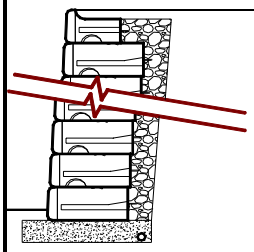
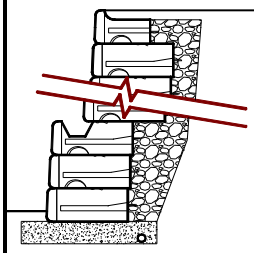
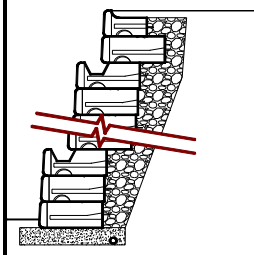
Check with your local authorized Redi-Rock® Manufacturer for Product Availability

Dense Well Graded Sand, Sand & Gravel - Internal Angle of Friction (Φ) = 34˚

Non Reinforced Walls with 41" Wide Blocks

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	0' to 7'-6"	6"	6"	0' to 7'-6"	6"	6"	0' to 7'-6"	6"	6"
	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"			
	12'-0"	1'-0"	1'-0"						
 1 Planter	7'-6"	6"	6"	6'-0"	6"	6"	6'-0"	6"	6"
	9'-0"	6"	1'-0"	7'-6"	6"	6"	7'-6"	6"	6"
	10'-6"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	12'-0"	1'-0"	1'-0"	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"
	13'-6"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"			
	15'-0"	1'-0"	1'-0"						
 2 Planters	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"			
	15'-0"	1'-0"	1'-0"						
	16'-6"	1'-0"	1'-0"						

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Other Notes:

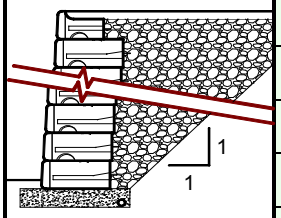
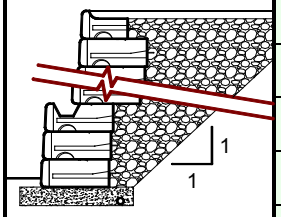
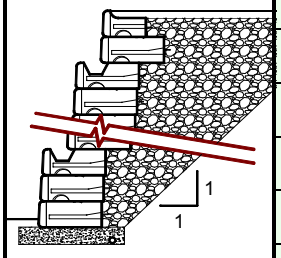
1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 34°

Non Reinforced Walls with 41" Wide Blocks and Crushed Stone Backfill

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	7'-6	6"	6"	7'-6"	6"	6"	7'-6"	6"	6"
	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"			
	13'-6"	1'-0"	1'-0"						
 1 Planter	9'-0"	6"	1'-0"	9'-0"	6"	1-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"	10'-6"	6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
	15'-0"	1'-0"	1'-0"	15'-0"	1'-0"	1'-0"			
	16-6"	1'-0"	1'-0"						
 2 Planters	12-0"	1'-0"	1'-0"	12-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
	15'-0"	1'-0"	1'-0"	15'-0"	1'-0"	1'-0"	15'-0"	1'-6"	1'-0"
	16'-6"	1'-0"	1'-0"	16'-6"	1'-6"	1'-0"	16'-6"	1'-6"	1'-0"
	18'-0"	1'-6"	1'-0"						
	19'-6"	1'-6"	1'-0"						

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Other Notes:

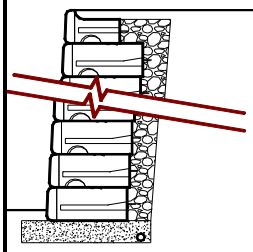
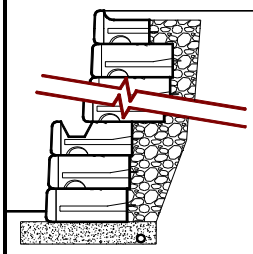
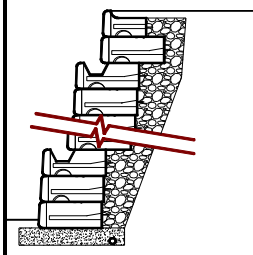
1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Fine to Medium Sand - Internal Angle of Friction (Φ) = 30˚

Non Reinforced Walls with 41" Wide Blocks

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	0' to 6'-0"	6"	6"	0' to 6'-0"	6"	6"	0' to 6'-0"	6"	6"
	7'-6"	6"	6"	7'-6"	6"	6"			
	9'-0"	6"	1'-0"						
	10'-6"	6"	1'-0"						
 1 Planter	6'-0"	6"	6"	6'-0"	6"	6"	6'-0"	1'-0"	6"
	7'-6"	6"	6"	7'-6"	6"	6"	7'-6"	1'-0"	6"
	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"			
	10'-6"	6"	1'-0"						
	12'-0"	1'-0"	1'-0"						
 2 Planters	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"	9'-0"	1'-0"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"			
	12'-0"	1'-0"	1'-0"						
	13'-6"	1'-6"	1'-0						

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Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
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4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
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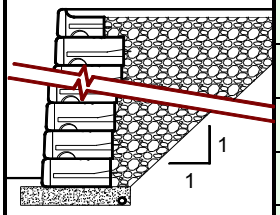
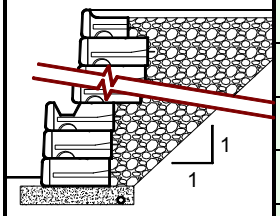
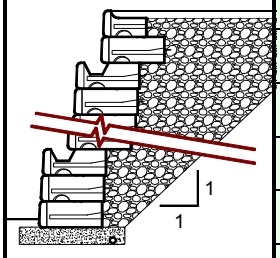
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 30°

Non Reinforced Walls with 41" Wide Blocks and Crushed Stone Backfill

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	7'-6"	6"	6"	7'-6"	6"	6"	7'-6"	6"	1'-0"
	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	1'-0"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"			
	13'-6"	1'-0"	1'-0"						
 1 Planter	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"	12'-0"	1'-6"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"
	15'-0"	1'-6"	1'-0"	15'-0"	2'-0"	1'-0"			
	16'-6"	2'-0"	1'-0"						
 2 Planters	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"	12'-0"	1'-6"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"
	15'-0"	1'-6"	1'-0"	15'-0"	2'-0"	1'-0"	15'-0"	2'-6"	1'-0"
	16'-6"	2'-0"	1'-0"						

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4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
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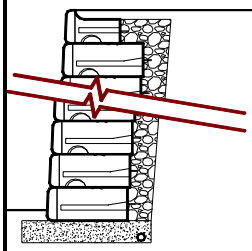
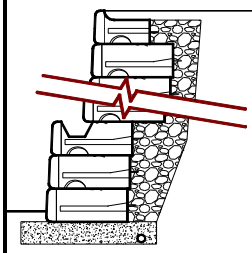
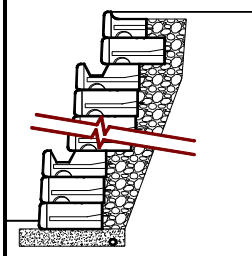
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Clayey Sand - Internal Angle of Friction (Φ) = 28˚

Non Reinforced Walls with 41" Wide Blocks

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	0' to 4'-6"	6"	6"	0' to 4'-6"	6"	6"	0' to 4'-6"	6"	6"
	6'-0"	6"	6"	6'-0"	6"	6"			
	7'-6"	6"	6"						
	9'-0"	6"	1'-0"						
 1 Planter	6'-0"	6"	6"	6'-0"	6"	6"	6'-0"	1'-0"	6"
	7'-6"	6"	6"	7'-6"	1'-0"	6"			
	9'-0"	6"	1'-0"						
	10'-6"	1'-0"	1'-0"						
 2 Planters	9'-0"	6"	1'-0"	*Not Applicable*			*Not Applicable*		
	10'-6"	1'-0"	1'-0"						

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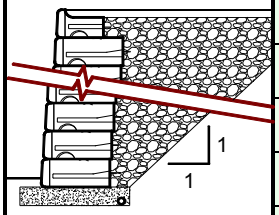
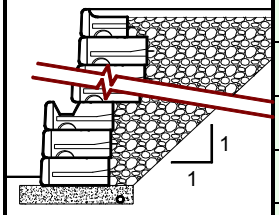
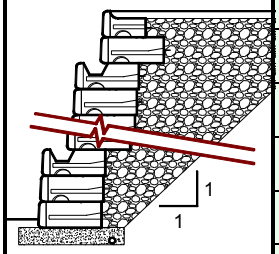
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 28°

Non Reinforced Walls with 41" Wide Blocks and Crushed Stone Backfill

Load Condition A, B, and C

Place planter blocks to approximate average batter angle.

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 0 Planters	6'-0"	6"	6"	6'-0"	6"	6"	6'-0"	1'-0"	6"
	7'-6"	6"	6"	7'-6"	1'-0"	6"	7'-6"	1'-0"	1'-0"
	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"	9'-0"	1'-6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	2'-0"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"			
	13'-6"	1'-6"	1'-0"						
 1 Planter	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"	9'-0"	1'-6"	1'-0"
	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"	10'-6"	2'-0"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"	12'-0"	2'-6"	1'-0"
	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"	13'-6"	3'-0"	1'-0"
	15'-0"	2'-0"	1'-0"	15'-0"	2'-6"	1'-0"			
	16'-6"	2'-6"	1'-0"						
 2 Planters	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"	10'-6"	2'-0"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	2'-0"	1'-0"	12'-0"	2'-6"	1'-0"
	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"	13'-6"	3'-0"	1'-0"
	15'-0"	2'-0"	1'-0"	15'-0"	2'-6"	1'-0"			
	16-6"	2'-6"	1'-0"						

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6. All Redi-Rock™ International Wall System Specifications are to be followed.

SPECIFICATIONS FOR REDI-ROCK® 41" SERIES WALL SYSTEM

PART 1: GENERAL

1.1 Scope

Work includes furnishing and installing concrete retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

1.2 Reference Standards

ASTM C94 Ready-Mixed Concrete
ASTM C1372 Segmental Retaining Wall Units

1.3 Delivery, Storage, and Handling

A. Contractor shall check the materials upon delivery to assure proper material has been received.
B. Contractor shall prevent excessive mud, wet cement and like materials from coming in contact with the SRW units.
C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project.

PART 2: MATERIALS

2.1 Wall Units

A. Wall units shall be Redi-Rock® as produced by a licensed manufacturer.
B. Wall units shall be made with Ready-Mixed concrete in accordance with ASTM C94, latest revision, and per the following chart:

Climate	Air Content	28 Day Compressive Strength, psi	Slump*
Negligible	1½%-4½%	4000	5" ±1 ½"
Moderate	3%-6%	4000	5" ±1 ½"
Severe	4½%-7½%	4000	5" ±1 ½"

*Higher slumps are allowed if achieved by use of appropriate admixtures.
Notwithstanding anything stated above, all material used in the wall units must meet applicable ASTM and local requirements for exterior concrete.

C. Exterior block dimensions shall be uniform and consistent. Maximum dimensional deviations shall be 1% excluding the architectural surface. Maximum width (face to back) deviation including the architectural surface shall be 1.0 inch.
D. Exposed face shall be finished as specified. Other surfaces to be smooth form type. Dime-size bug holes on the block face may be patched and/or shake-on color stain can be used to blend into the remainder of the block face.

2.2 Leveling Pad and Free Draining Backfill

A. Leveling pad shall be crushed stone. See detail sheet defining Leveling Pad options for drain placement in the bottom of the foundation leveling pad.
B. Free Draining Backfill material shall be washed stone and shall be placed to a minimum of 1' width behind the back of the wall and shall extend vertically from the Leveling Pad to an elevation 4" below the top of wall.
C. Backfill material shall be approved by the geotechnical engineer. Site excavated soils may be used if approved unless otherwise specified in the drawings. Unsuitable soils with a PL>6, organic soils and frost susceptible soils shall not be used within a 1 to 1 influence area.
D. Non-woven geotextile cloth shall be placed between the Free Draining Backfill and retained soil if required.
E. Where additional fill is needed, Contractor shall submit sample and specifications to the Engineer for approval.

SPECIFICATIONS FOR REDI-ROCK® 41" SERIES WALL SYSTEM

2.3 Drainage

A. Internal and external drainage shall be evaluated by the Professional Engineer who is responsible for the final wall design.

2.4 Geogrid Connection (reinforced walls only)

A. Fiberglass rod used in the Type 1AT Geo-Grid connection shall be 7/16" diameter. Only fiberglass rod obtained from an authorized Redi-Rock® dealer shall be used.

PART 3: CONSTRUCTION OF WALL SYSTEM

3.1 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings.

3.2 Foundation Soil Preparation

A. Native foundation soil shall be compacted to 95% of standard proctor or 90% of modified proctor prior to placement of the Leveling Pad material.

B. In-situ foundation soil shall be examined by the Engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable, compacted material.

3.3 Leveling Pad Placement

A. Leveling Pad shall be placed as shown on the construction drawings.

B. Leveling Pad shall be placed on undisturbed native soils or suitable replacements fills.

C. Leveling Pad shall be compacted to 95% of standard proctor or 90% of modified proctor to ensure a level, hard surface on which to place the first course blocks. Pad shall be constructed to the proper elevation to ensure the final elevation shown on the plans.

D. Leveling Pad shall have a 6 inch minimum depth for walls under 8 feet in height and a 12 inch minimum depth for walls over 8 feet. Pad dimensions shall extend beyond the blocks in all directions to a distance at least equal to the depth of the pad or as designed by Engineer.

E. For steps and pavers, a minimum of 1" - 1 ½" of free draining sand shall be screeded smooth to act as a placement bed for the steps or pavers.

3.4 Unit Installation

A. The first course of wall units shall be placed on the prepared Leveling Pad with the aesthetic surface facing out and the front edges tight together. All units shall be checked for level and alignment as they are placed.

B. Ensure that units are in full contact with Leveling Pad. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.

C. The backfill in front and back of entire base row shall be placed and compacted to firmly lock them in place. Make sure to infill the triangular space between blocks with Free Draining Backfill. Check all units again for level and alignment. All excess material shall be swept from top of units.

D. Install next course of wall units on top of base row. Position blocks to be offset from seams of blocks below. Blocks shall be placed fully forward so knob and groove are engaged. Check each block for proper alignment and level. Backfill the triangular space between adjacent blocks and at least 12 inches behind the blocks with Free Draining Backfill. Spread backfill in uniform lifts not exceeding 9 inches. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated plate compaction equipment shall be used around the block and within 3 feet of the wall to achieve consolidation. Compact backfill to 95% of standard proctor (ASTM D 698, AASHTO T-99) density within 2% of its optimum moisture content.

E. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.

F. Allowable construction tolerance at the wall face is 2 degrees vertically and 1 inch in 10 feet horizontally.

G. All walls shall be installed in accordance with local building codes and requirements.

3.5 Geogrid Installation (reinforced walls only)

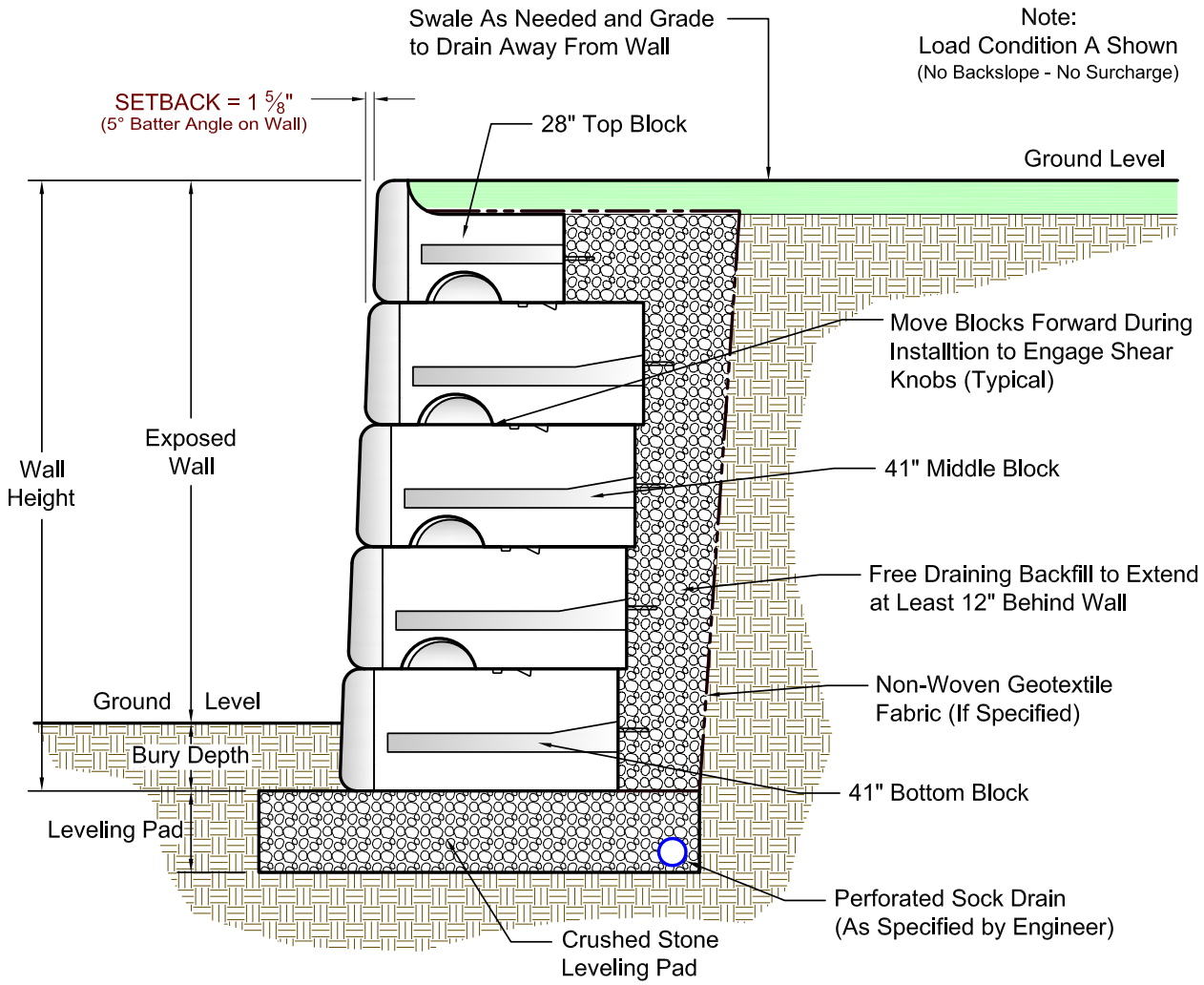
A. See Wall Installation instructions.

PART 4: AVAILABILITY

Redi-Rock® International
05481 South US-31,
Charlevoix, MI 49720
1-866-222-8400
www.redi-rock.com
info@redi-rock.com

Typical Gravity Wall with 41" Blocks

No Scale

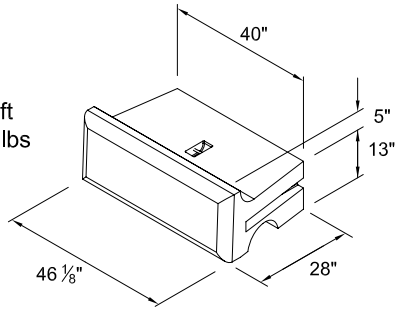


See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

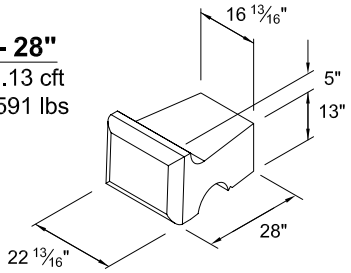
DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY			
APPROVED BY		DRAWING FILE: Typical 41 in Block Gravity Wall 041411.dwg	REVISION: ---
ISSUE DATE		SCALE: NO SCALE	SHEET NO.: 1 OF 1

41" SERIES BLOCKS

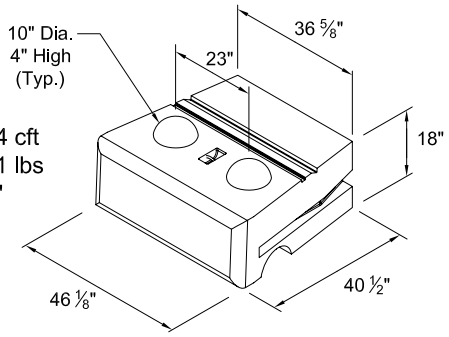
Top - 28"
Volume = 8.55 cft
Weight = ±1223 lbs
C of G = 15.06"



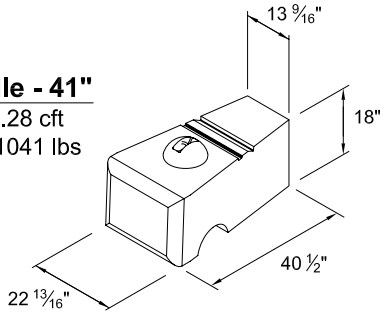
Half Top - 28"
Volume = 4.13 cft
Weight = ±591 lbs



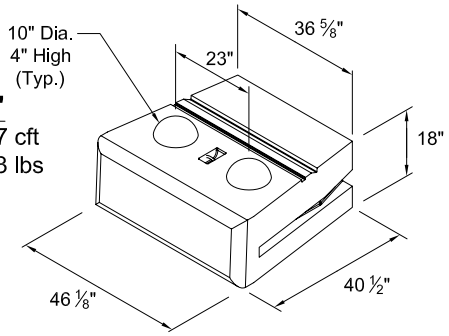
Middle - 41"
Volume = 16.44 cft
Weight = ±2351 lbs
C of G = 20.92"



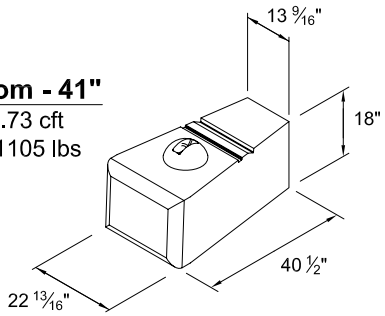
Half Middle - 41"
Volume = 7.28 cft
Weight = ±1041 lbs



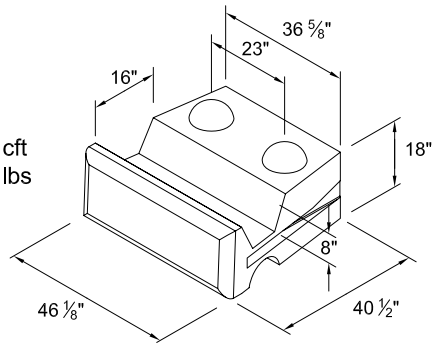
Bottom - 41"
Volume = 17.37 cft
Weight = ±2483 lbs
C of G = 21.3"



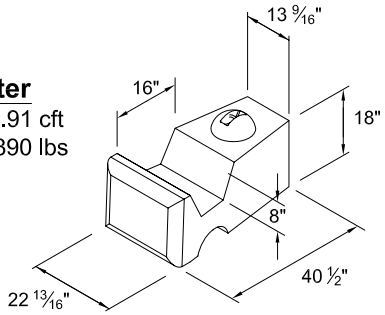
Half Bottom - 41"
Volume = 7.73 cft
Weight = ±1105 lbs



Planter
Volume = 14.12 cft
Weight = ±2020 lbs
C of G = 19.35"



Half Planter
Volume = 5.91 cft
Weight = ±890 lbs



NOTES:

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

Half blocks may include a fork lift slot on one side.

Actual weights and volumes may vary.

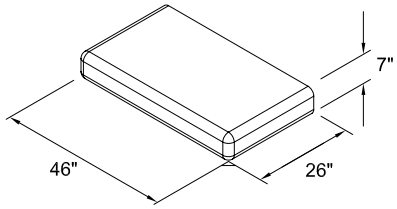
Weight shown is based on 143 pcf concrete.

DRAWN BY: J. JOHNSON	01/09/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: 41in Series Blocks 010909.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

STEPS

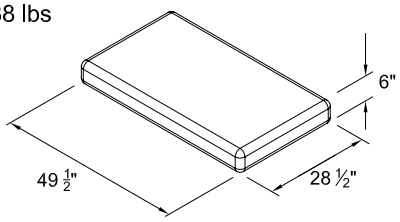
3-Sided Straight Step

Volume = 4.58 cft
Weight = ±655 lbs



4-Sided 6" Cap Block

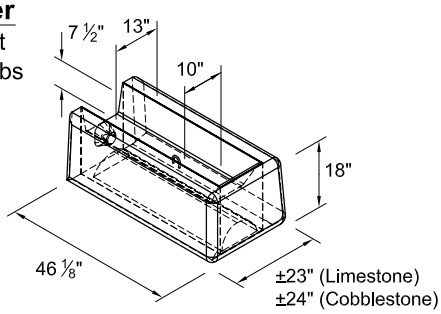
Volume = 4.81 cft
Weight = ±688 lbs



FREESTANDING CORNER BLOCKS

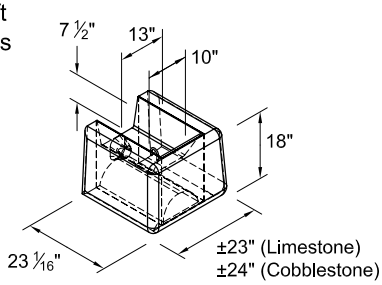
Garden Corner

Volume = 8.26 cft
Weight = ±1182 lbs



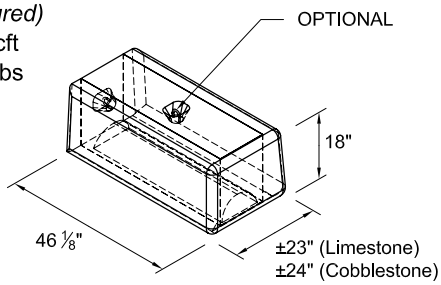
Half Garden Corner

Volume = 4.25 cft
Weight = ±607 lbs



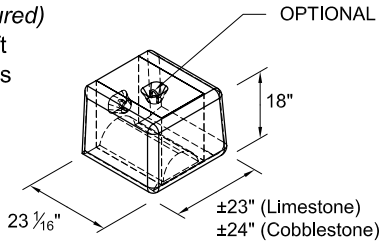
Top Corner

(Smooth or Textured)
Volume = 10.44 cft
Weight = ±1493 lbs



Half Top Corner

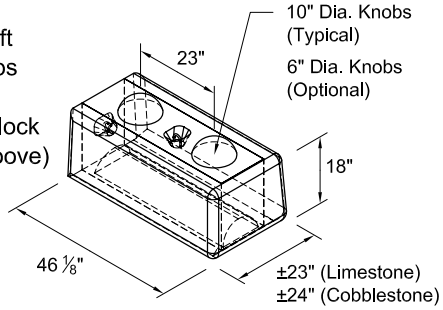
(Smooth or Textured)
Volume = 5.18 cft
Weight = ±741 lbs



Middle Corner

Volume = 10.73 cft
Weight = ±1534 lbs

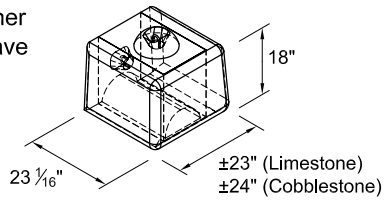
(Bottom Corner Block does not have groove)



Half Middle Corner

Volume = 5.28 cft
Weight = ±755 lbs

(Half Bottom Corner Block does not have groove)



NOTES:

Architectural faces on the blocks have varying texture.
Volumes are based on the blocks as shown.
Actual weights and volumes may vary.
Weight shown is based on 143 pcf concrete.

DRAWN BY: J. JOHNSON	10/06/09	Redi-Rock® International, LLC	
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APPROVED BY		DRAWING FILE: Steps and Corners for 41in Series 100609.dwg	REVISION: ---
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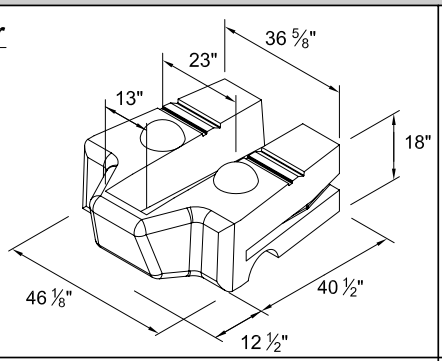
SPECIALTY BLOCKS

Protruding Planter

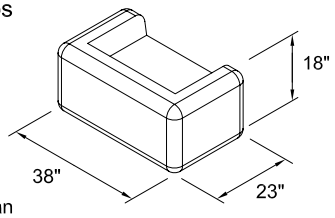
Volume = 15.45 cft
Weight = ±2210 lbs
C of G = 24.71"



Note: Limestone face shown. Cobblestone face also available.

23" End Block

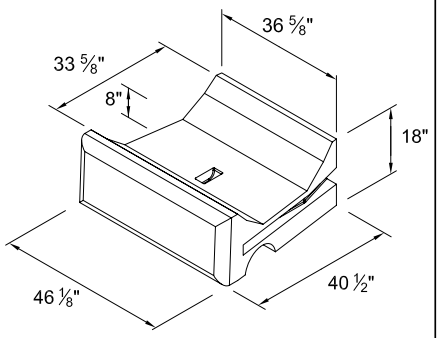
Volume = 6.79 cft
Weight = ± 970 lbs
C of G = 12.29"



Note: This block can also be used with the 28" Series blocks.

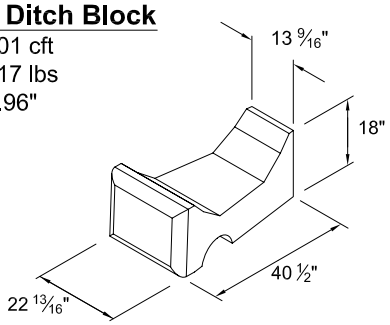
Drain Ditch Block

Volume = 11.28 cft
Weight = ±1614 lbs
C of G = 21.57"



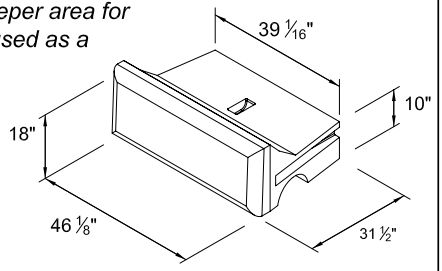
Half Drain Ditch Block

Volume = 5.01 cft
Weight = ±717 lbs
C of G = 22.96"



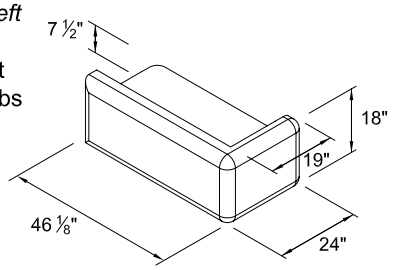
Drain Ditch Block - *MODIFIED*

(Block poured to the back of the ditch line. This provides deeper area for topsoil when block is used as a top block)
Volume = 8.5 cft
Weight = ±1215 lbs
C of G = 18.1"



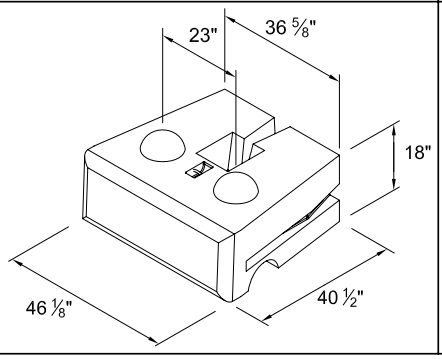
Garden Corner - *MODIFIED*

(Back edge of block sawcut and removed to make right or left top corner block)
Volume = 8.26 cft
Weight = ±1180 lbs



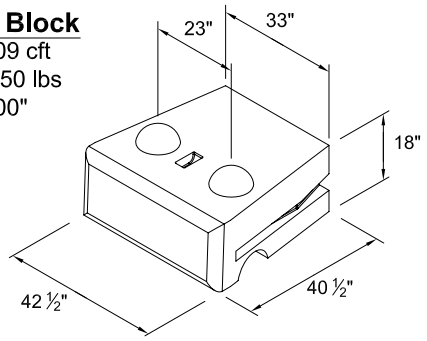
Anchor Block

Volume = 15.80 cft
Weight = ±2259 lbs
C of G = 21.2"



42½" Short Block

Volume = 15.09 cft
Weight = ± 2150 lbs
C of G = 21.00"



NOTES:

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

Half blocks include a fork lift slot on one side.

Actual weights and volumes will may vary.

Weight shown is based on 143 pcf concrete.

DRAWN BY: J. JOHNSON	01/12/09	Redi-Rock® International, LLC
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APPROVED BY:		DRAWING FILE: Specialty Blocks Used with 41in Series 011209.dwg — REVISION: ---
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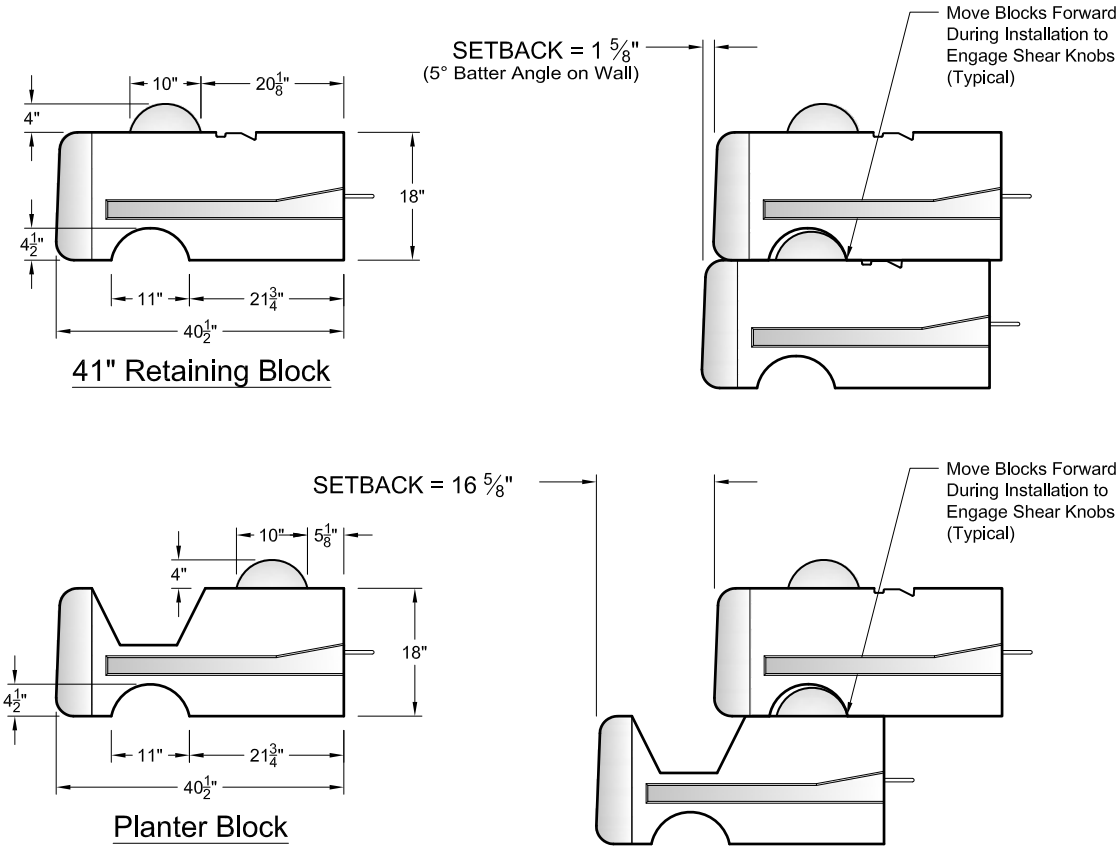
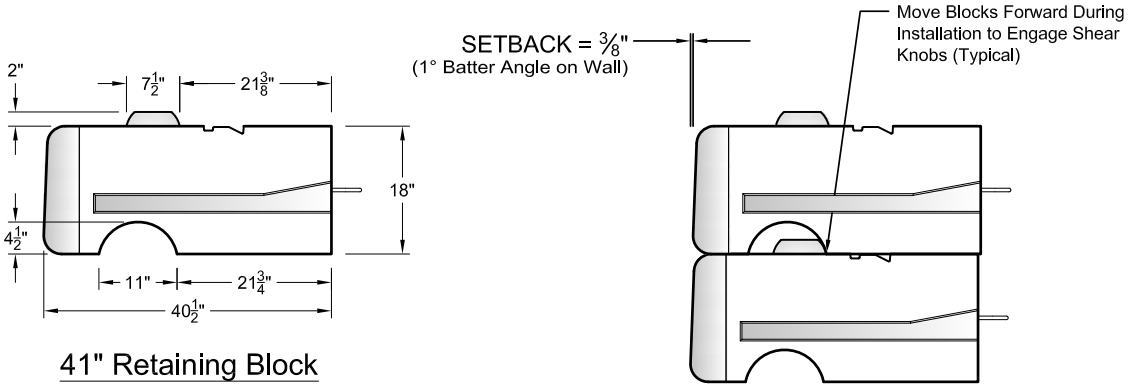
Typical Block Setbacks



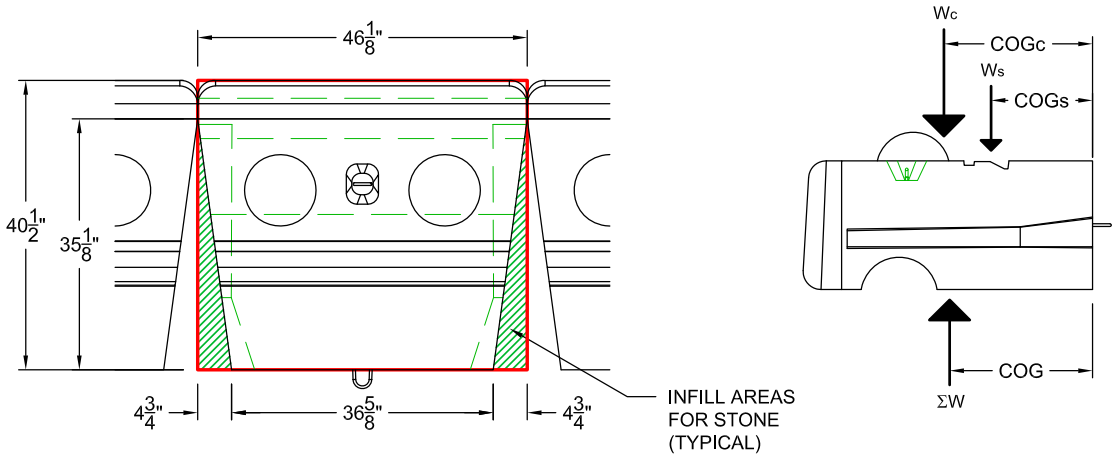
One Degree (1°) Setback Wall Using 7 1/2" Shear Knob

(SPECIALTY OPTION)



DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Typical Block Setbacks for 41in Series 041411.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

41" Middle Block with Soil Infill



CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	16.44 cft (Data from CAD Model)
Center of Gravity (COGc)	20.92 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 16.44 cft x 143 pcf = 2,351 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	[½ x 4.75 x 35.125 x 18] x (1ft/12 in)^3 x 2 Sides = 1.74 cft (Includes Area Between Blocks)
Center of Gravity (COGs)	⅓ x 35.125 = 11.71 in from Back of Block
Infill Soil Weight (Ws)	Ws = 1.74 cft x 120 pcf = 209 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	2,351 lb	20.92 in	49,183 lb*in
Soil	209 lb	11.71 in	2,447 lb*in
Totals	*2,560 lb*		*51,630 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 51,630 lb * in / 2,560 lb
= 20.2 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS,
COG = 20.3" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

40.5 in x 46.125 in x 18 in = 33,625 in^3 = 19.46 cft

WEIGHT

Concrete Block = 2,351 lb
Infill Soil = 209 lb
Total Weight = 2,560 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 2,560 lb / 19.46 cft = 131.6 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, γ_{INFILL} = 130 pcf

DRAWN BY: J. JOHNSON	02/21/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: COG for 41in Middle Block 022111.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

THE ESSENCE OF NATURAL ROCK

REDI-ROCK

See www.redi-rock.com for:

-Interface shear test reports

-Section drawings for conditions shown in preliminary design charts

60” BLOCK

Used With 41” Series

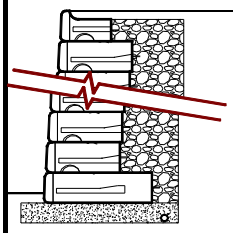
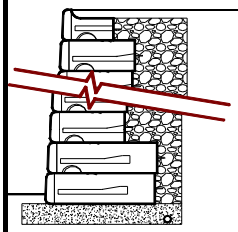
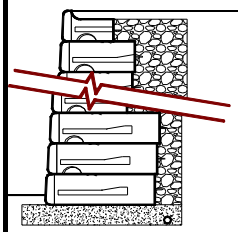
Redi-Rock International
05481 US 31 South
Charlevoix, MI 49720
866-222-8400
info@redi-rock.com
www.redi-rock.com

Check with your local authorized Redi-Rock® Manufacturer for Product Availability

Dense Well Graded Sand, Sand & Gravel - Internal Angle of Friction (Φ) = 34˚

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	13'-6'	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	10'-6"	6"	1'-0"
 (2) 60" Blocks	15'-0"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
 (3) 60" Blocks	16'-6"	1'-0"	1'-0"	*(No advantage w/ (3) 60" blocks.)*			*(No advantage w/ (3) 60" blocks.)*		

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

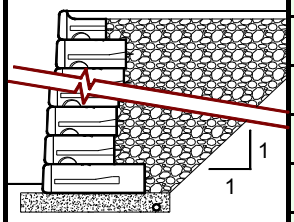
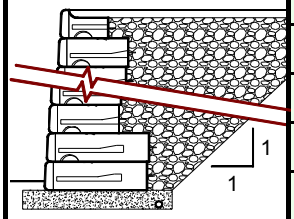
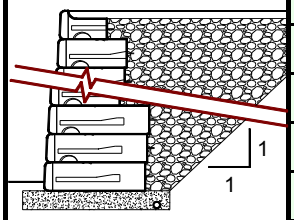
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 34°

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	15'-0"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
 (2) 60" Blocks	16'-6"	1'-0"	1'-0"	15'-0"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
 (3) 60" Blocks	18'-0"	1'-0"	1'-0"	16'-6"	1'-0"	1'-0"	15'-0"	1'-0"	1'-0"

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

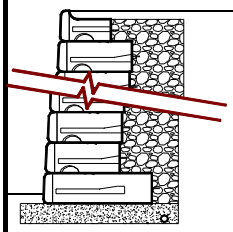
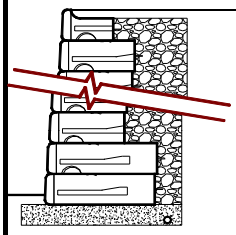
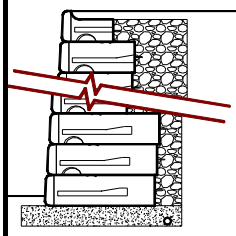
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Fine to Medium Sand - Internal Angle of Friction (Φ) = 30˚

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	12'-0"	1'-0"	1'-0"	9'-0"	6"	1'-0"	7'-6"	6"	6"
				10'-6"	6"	1'-0"			
 (2) 60" Blocks	13'-6"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	9'-0"	1'-0"	1'-0"
 (3) 60" Blocks	15'-0"	1'-0"	1'-0"	*(No advantage w/ (3) 60" blocks.)*			*(No advantage w/ (3) 60" blocks.)*		

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

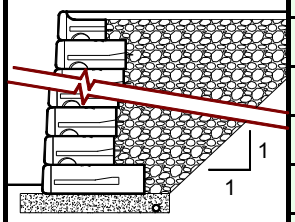
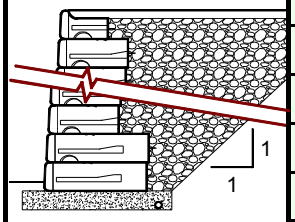
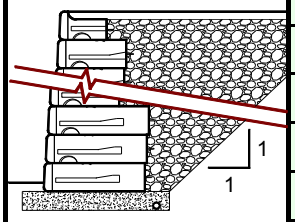
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 30°

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	13'-6"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"
	15'-0"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"			
 (2) 60" Blocks	16'-6"	1'-6"	1'-0"	15'-0"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"
 (3) 60" Blocks	18'-0"	1'-6"	1'-0"	16'-6"	1'-6"	1'-0"	15'-0"	2'-0"	1'-0"

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

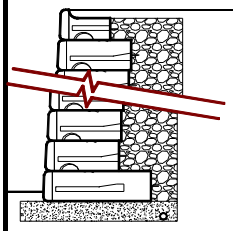
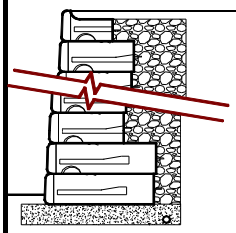
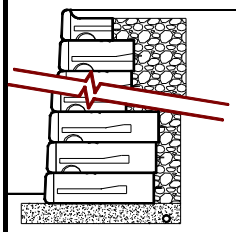
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Clayey Sand - Internal Angle of Friction (Φ) = 28˚

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	10'-6"	6"	1'-0"	7'-6"	6"	6"	6'-0"	6"	6"
	12'-0"	1'-0"	1'-0"	9'-0"	6"	1'-0"			
 (2) 60" Blocks	*(No advantage w/ (2) 60" blocks.)*			*(No advantage w/ (2) 60" blocks.)*			*(No advantage w/ (2) 60" blocks.)*		
 (3) 60" Blocks	*(No advantage w/ (3) 60" blocks.)*			*(No advantage w/ (3) 60" blocks.)*			*(No advantage w/ (3) 60" blocks.)*		

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

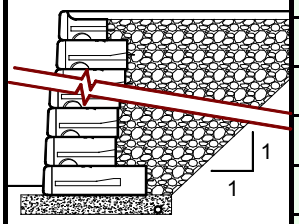
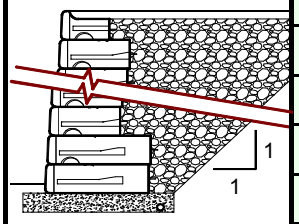
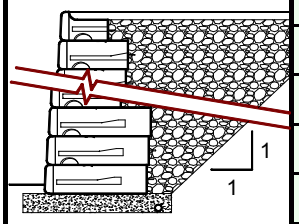
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 28°

Non Reinforced Walls with 60" and 41" Wide Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 (1) 60" Block	13'-6"	1'-0"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6	1'-6"	1'-0"
	15'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	2'-0"	1'-0"
				13'-6"	1'-6"	1'-0"			
 (2) 60" Blocks	16'-6"	1'-6"	1'-0"	15'-0"	1'-6"	1'-0"	13'-6"	2'-6"	1'-0"
 (3) 60" Blocks	18'-0"	2'-0"	1'-0"	16'-6"	2'-0"	1'-0"	15'-0	3'-0"	1'-0"

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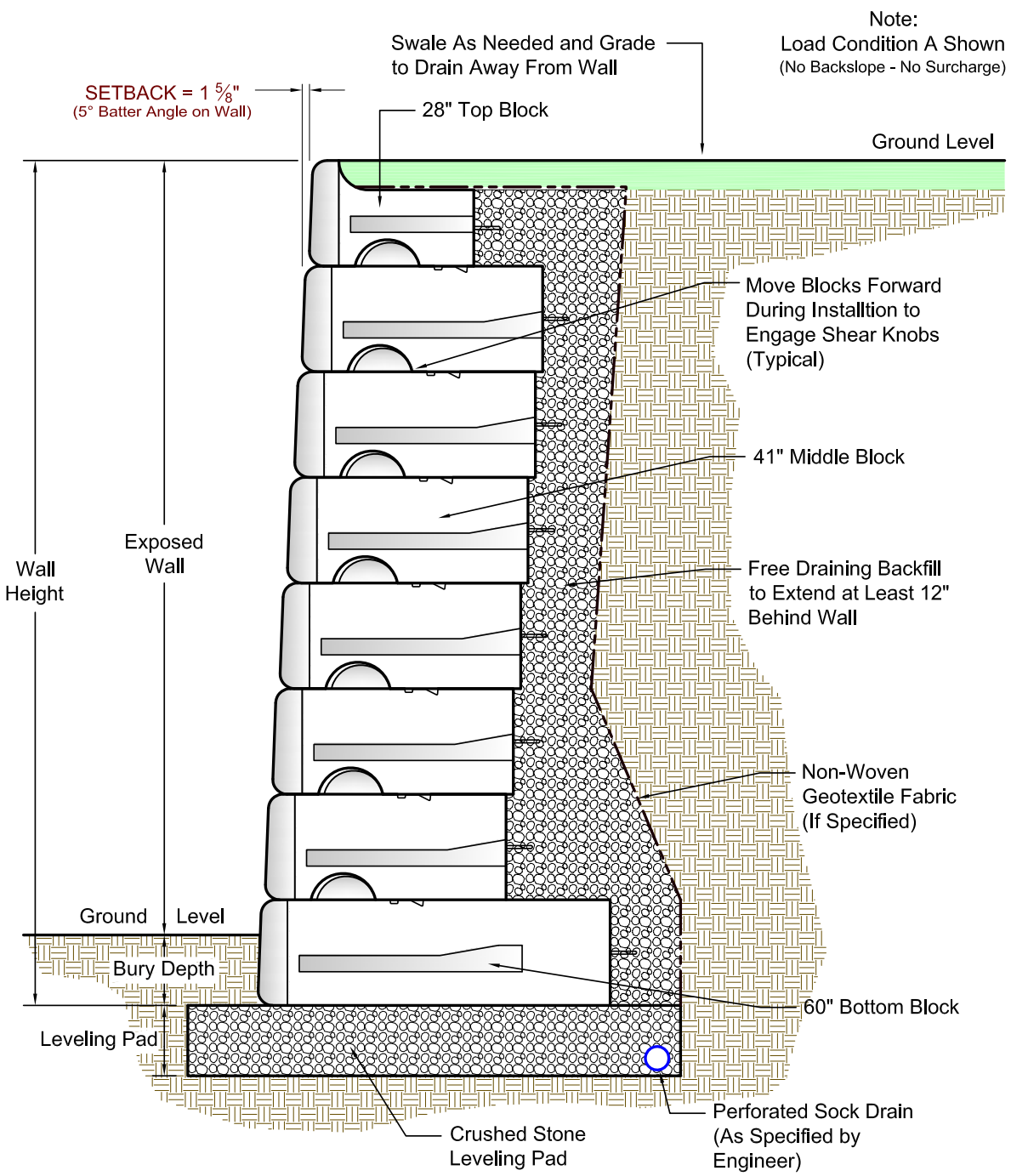
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Typical Gravity Wall with 60" and 41" Blocks

No Scale

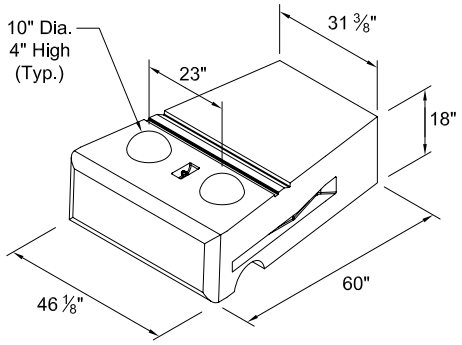


See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

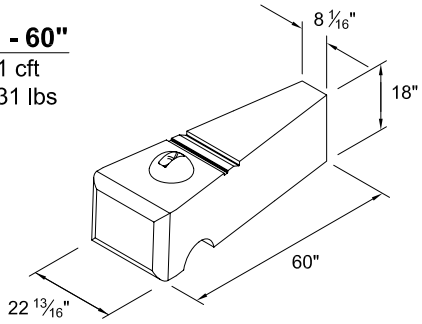
DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY			
APPROVED BY		DRAWING FILE: Typical 60 in and 41 in Block Gravity Wall 041411.dwg	REVISION: —
ISSUE DATE		SCALE: NO SCALE	SHEET NO.: 1 OF 1

60" BLOCKS

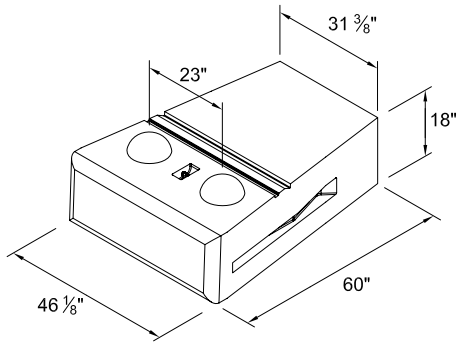
Middle - 60"
Volume = 23.0 cft
Weight = ±3290 lbs
C of G = 31.28"



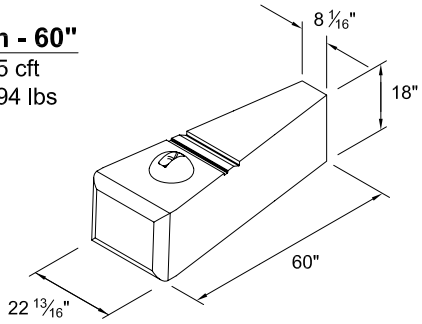
Half Middle - 60"
Volume = 9.31 cft
Weight = ±1331 lbs



Bottom - 60"
Volume = 23.9 cft
Weight = ±3420 lbs
C of G = 31.90"



Half Bottom - 60"
Volume = 9.75 cft
Weight = ±1394 lbs



NOTES:

The 60" block is typically used as a bottom block in a larger wall. See the 41" Series for additional blocks and steps.

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

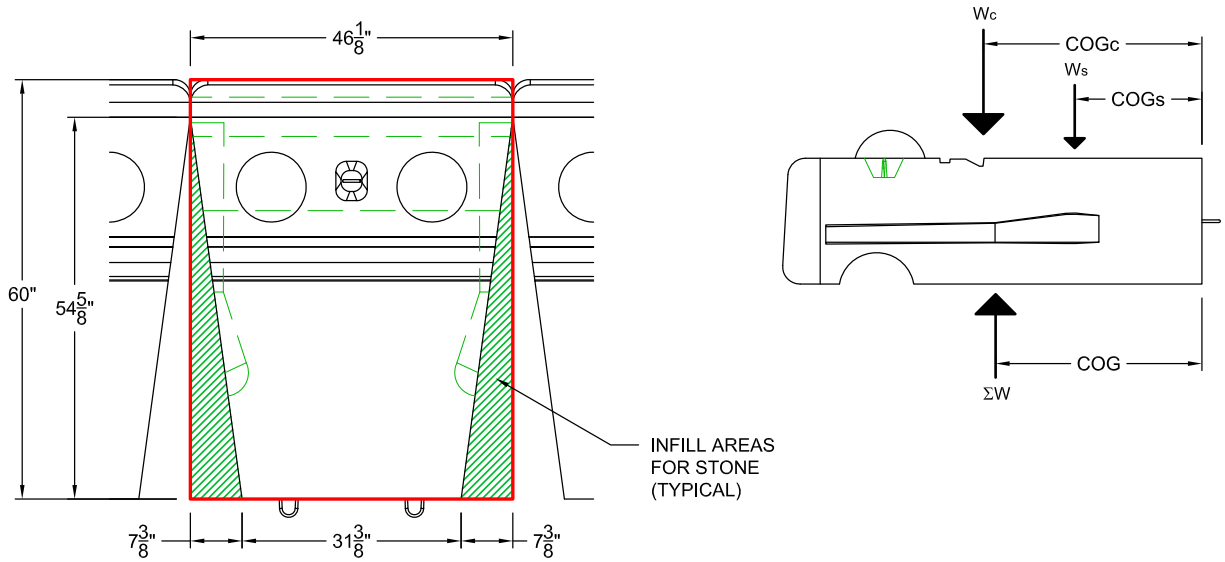
Half blocks may include a fork lift slot on one side.

Actual weights and volumes may vary.

Weight shown is based on 143 pcf concrete.

DRAWN BY: J. JOHNSON	01/12/09	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: 60in Block Details 011209.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

60" Middle Block with Soil Infill



CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	23.0 cft (Data from CAD Model)
Center of Gravity (COGc)	31.28 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 23.0 cft x 143 pcf = 3,289 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	[½ x 7.375 x 54.625 x 18] x (1ft/12 in)^3 x 2 Sides = 4.20 cft (Includes Area Between Blocks)
Center of Gravity (COGs)	⅓ x 54.625 = 18.21 in from Back of Block
Infill Soil Weight (Ws)	Ws = 4.20 cft x 120 pcf = 504 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	3,289 lb	31.28 in	102,880 lb*in
Soil	504 lb	18.21 in	9,178 lb*in
Totals	*3,793 lb*		*112,058 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 112,058 lb * in / 3,793 lb
= 29.54 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS,
COG = 30.5" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

60.0 in x 46.125 in x 18 in = 49,815 in^3 = 28.83 cft

WEIGHT

Concrete Block = 3,289 lb
Infill Soil = 504 lb
Total Weight = 3,793 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 3,793 lb / 28.83 cft = 131.6 pcf

FOR WALL STABILITY CALCULATIONS, INFILLED UNIT WEIGHT, γ_{INFILL} = 130 pcf

DRAWN BY: J. JOHNSON	02/21/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: COG for 60in Middle Block 022111.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

THE ESSENCE OF NATURAL ROCK

REDI-ROCK

See www.redi-rock.com for:

-Interface shear test reports

-Section drawings for conditions shown in preliminary design charts

9” SETBACK BLOCK

Used with 41” Series

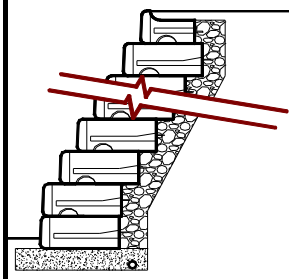
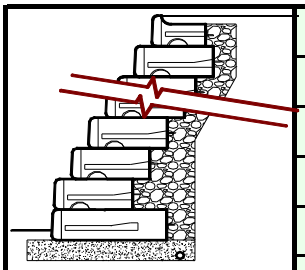
Redi-Rock International
05481 US 31 South
Charlevoix, MI 49720
866-222-8400
info@redi-rock.com
www.redi-rock.com

Check with your local authorized Redi-Rock® Manufacturer for Product Availability

Dense Well Graded Sand, Sand & Gravel - Internal Angle of Friction (Φ) = 34˚

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	7'-6"	6"	6"	7'-6"	6"	6"	7'-6"	6"	6"
	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	1'-0"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
	15'-0"	1'-0"	1'-0"	15'-0"	1'-6"	1'-0"	15'-0"	1'-6"	1'-0"
	16'-6"	1'-6"	1'-0"	16'-6"	1'-6"	1'-0"			
	18'-0"	2'-0"	1'-0"						
	19'-6"	2'-0"	1'-0"						
	21'-0"	2'-6"	1'-0"						
	22'-6"	2'-6"	1'-0"						
	24'-0"	3'-0"	1'-0"						
 60" Bottom Block	19'-6"	1'-6"	1'-0"	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
	21'-0"	2'-0"	1'-0"	15'-0"	1'-0"	1'-0"	15'-0"	1'-0"	1'-0"
	22'-6"	2'-0"	1'-0"	16'-6"	1'-0"	1'-0"			
	24'-0"	2'-6"	1'-0"	18'-0"	1'-6"	1'-0"			
	25'-6"	2'-6"	1'-0"						

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Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
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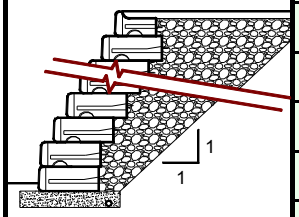
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 34°

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"
	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"	13'-6"	1'-0"	1'-0"
	15'-0"	1'-0"	1'-0"	15'-0"	1'-6"	1'-0"	15'-0"	1'-6"	1'-0"
	16'-6"	1'-6"	1'-0"	16'-6"	2'-0"	1'-0"	16'-6"	2'-0"	1'-0"
	18'-0"	2'-0"	1'-0"	18'-0"	2'-0"	1'-0"	18'-0"	2'-0"	1'-0"
	19'-6"	2'-0"	1'-0"	19'-6"	2'-6"	1'-0"	19'-6"	2'-6"	1'-0"
	21'-0"	2'-6"	1'-0"	21'-0"	2'-6"	1'-0"	21'-0"	3'-0"	1'-0"
	22'-6"	2'-6"	1'-0"	22'-6"	3'-0"	1'-0"	22-6"	3'-0"	1'-0"
	24'-0"	3'-0"	1'-0"	24'-0"	3'-0"	1'-0"	24'-0"	3'-0"	1'-0"
	25'-6"	3'-0"	1'-0"	25'-6"	3'-6"	1'-0"	25'-6"	3'-6"	1'-0"
	27'-0"	3'-6"	1'-0"	27'-0"	3'-6"	1'-0"	27'-0"	3'-6"	1'-0"
	28'-6"	3'-6"	1'-0"	28'-6"	4'-0"	1'-0"	28'-6"	4'-0"	1'-0"
	30'-0"	3'-6"	1'-0"	30'-0"	4'-0"	1'-0"	30'-0"	4'-0"	1'-0"

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

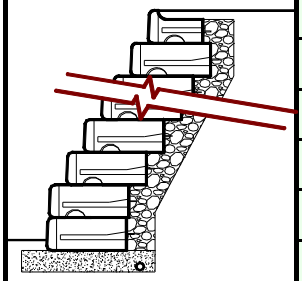
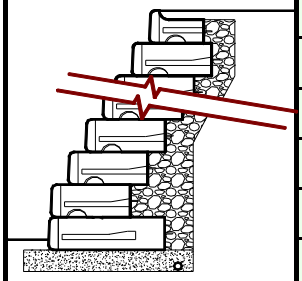
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Fine to Medium Sand - Internal Angle of Friction (Φ) = 30˚

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	4'-6"	6"	6"	4'-6"	6"	6"	4'-6"	6"	6"
	6'-0"	6"	6"	6'-0"	6"	6"	6'-0"	6"	6"
	7'-6"	6"	6"	7'-6"	1'-0"	6"	7'-6"	1'-0"	6"
	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"			
	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"			
	12'-0"	1'-6"	1'-0"						
	13'-6"	1'-6"	1'-0"						
	15'-0"	2'-0"	1'-0"						
 60" Bottom Block	9'-0"	6"	1'-0"	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"
	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"			
	12'-0"	1'-0"	1'-0"	12'-0"	1'-0"	1'-0"			
	13'-6"	1'-0"	1'-0"						
	15'-0"	1'-6"	1'-0"						
	16'-6"	1'-6"	1'-0"						
	18'-0"	2'-0"	1'-0"						

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

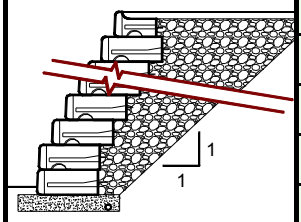
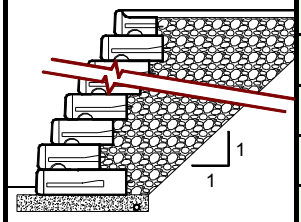
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 30°

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"	12'-0"	2'-0"	1'-0"
	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"	13'-6"	2'-6"	1'-0"
	15'-0"	2'-0"	1'-0"	15'-0"	2'-6"	1'-0"	15'-0"	3'-0"	1'-0"
	16'-6"	2'-6"	1'-0"	16'-6"	3'-0"	1'-0"	16'-6"	3'-0"	1'-0"
	18'-0"	3'-0"	1'-0"	18'-0"	3'-0"	1'-0"	18'-0"	3'-6"	1'-0"
	19'-6"	3'-0"	1'-0"	19'-6"	3'-6"	1'-0"			
	21'-0"	3'-6"	1'-0"						
 60" Bottom Block	16'-6"	2'-0"	1'-0"	16'-6"	2'-0"	1'-0"	16'-6"	2'-6"	1'-0"
	18'-0"	2'-0"	1'-0"	18'-0"	2'-6"	1'-0"	18'-0"	3'-0"	1'-0"
	19'-6"	2'-6"	1'-0"	19'-6"	3'-0"	1'-0"	19'-6"	3'-6"	1'-0"
	21'-0"	3'-0"	1'-0"	21'-0"	3'-6"	1'-0"			
	22'-6"	3'-6"	1'-0"	22'-6"	3'-6"	1'-0"			
	24'-0"	3'-6"	1'-0"						

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
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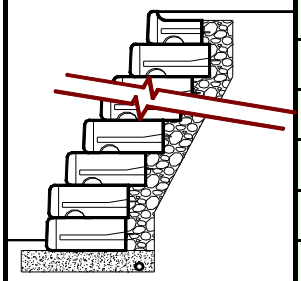
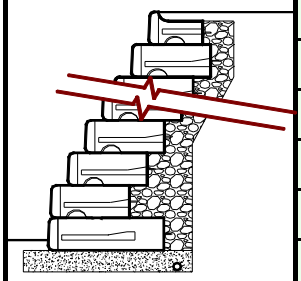
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Silty Sand, Clayey Sand - Internal Angle of Friction (Φ) = 28˚

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	4'-6"	6"	6"	4'-6"	6"	6"	4'-6"	6"	6"
	6'-0"	6"	6"	6'-0"	6"	6"	6'-0"	1'-6"	6"
	7'-6"	6"	6"	7'-6"	1'-6"	6"			
	9'-0"	6"	1'-0"						
	10'-6"	1'-0"	1'-0"						
	12'-0"	1'-6"	1'-0"						
 60" Bottom Block	7'-6"	6"	6"	7'-6"	6"	6"	6'-0"	6"	6"
	9'-0"	6"	1'-0"	9'-0"	1'-0"	1'-0"			
	10'-6"	6"	1'-0"						
	12'-0"	1'-0"	1'-0"						
	13'-6"	1'-6"	1'-0"						

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

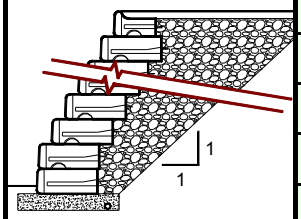
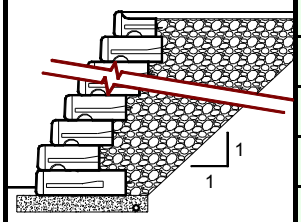
Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
3. Wall stability should be verified in the final design for site specific conditions.
4. The wall design shall address both internal and external drainage and shall be evaluated by the Professional Engineer who is responsible for the final wall design.
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Crushed Stone with (ϕ) = 40° over Native Soil with (ϕ) = 28°

Non Reinforced Walls with 41" Wide, 9" Setback Blocks

Load Condition A, B, and C

	LOAD CONDITION A No Back Slope No Surcharge			LOAD CONDITION B No Back Slope 250 psf Live Load Surcharge			LOAD CONDITION C 2.5 : 1 Back Slope No Surcharge		
	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad	Wall Height	Min. Bury Depth	Leveling Pad
 41" Bottom Block	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"	7'-6"	1'-6"	6"
	12'-0"	1'-6"	1'-0"	12'-0"	2'-0"	1'-0"	9'-0"	1'-6"	1'-0"
	13'-6"	2'-0"	1'-0"	13'-6"	2'-6"	1'-0"	10'-6"	2'-0"	1'-0"
	15'-0"	2'-6"	1'-0"	15'-0"	3'-0"	1'-0"	12'-0"	2'-6"	1'-0"
	16'-6"	3'-0'	1'-0"	16'-6"	3'-6"	1'-0"	13'-6"	3'-0"	1'-0"
	18'-0"	3'-6"	1'-0"				15'-0"	3'-6"	1'-0"
 60" Bottom Block	10'-6"	6"	1'-0"	10'-6"	1'-0"	1'-0"	10'-6"	1'-6"	1'-0"
	12'-0"	1'-0"	1'-0"	12'-0"	1'-6"	1'-0"	12'-0"	2'-0"	1'-0"
	13'-6"	1'-6"	1'-0"	13'-6"	2'-0"	1'-0"	13'-6"	2'-6"	1'-0"
	15'-0"	2'-0"	1'-0"	15'-0"	2'-6"	1'-0"	15'-0"	3'-0"	1'-0"
	16'-6"	2'-6"	1'-0"	16'-6"	3'-0"	1'-0"	16'-6"	3'-6"	1'-0"
	18'-0"	3'-0"	1'-0"	18'-0"	3'-0"	1'-0"			
	19'-6"	3'-0"	1'-0"	19'-6"	3'-6"	1'-0"			
	21'-0"	3'-6"	1'-0"						

The above chart was prepared by Redi-Rock™ International for estimating and conceptual design purposes only. All information is believed to be true and accurate, however, Redi-Rock™ International assumes no responsibility for the use of these design charts for actual construction. Determination of the suitability of each chart is the sole responsibility of the user. Final designs for construction purposes must be performed by a registered Professional Engineer, using the actual conditions of the proposed site.

Other Notes:

1. Unit weight of 28°, 30°, 34° and 40° soils is assumed to be 120pcf.
2. Minimum factors of safety are 1.5 for sliding, 1.5 for overturning, 2.0 for bearing capacity and 1.3 for global stability.
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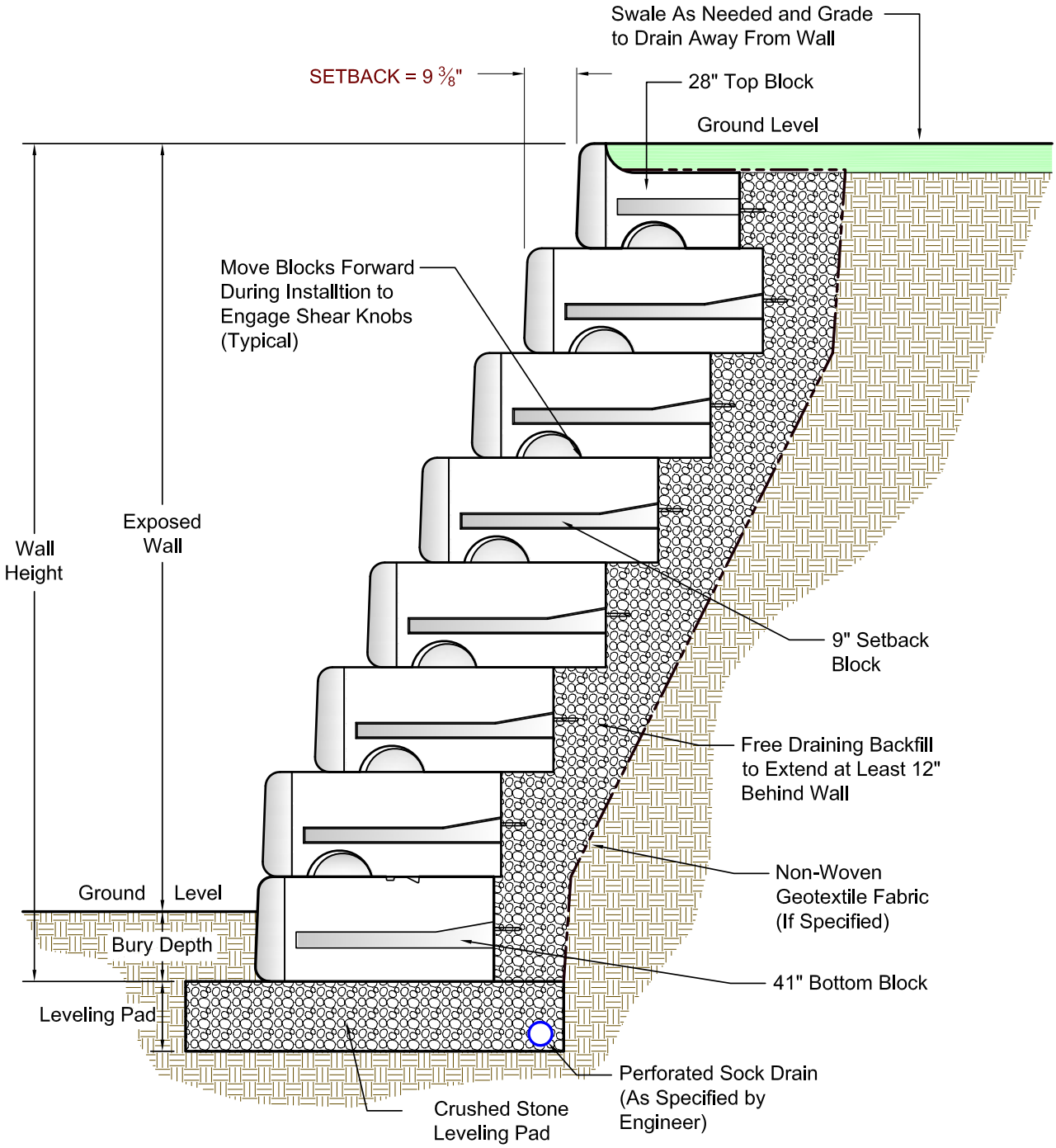
5. Backfill material to be compacted to 95% standard proctor density.
6. All Redi-Rock™ International Wall System Specifications are to be followed.

Typical Gravity Wall with 9" Setback Blocks

No Scale



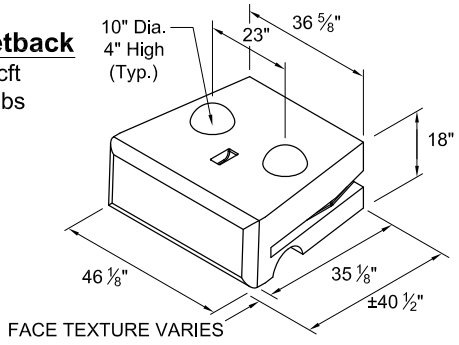
See Redi-Rock.com for Detailed Section Drawings of Each Condition Shown in the Design Charts

DRAWN BY: J. JOHNSON	04/14/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: Typical 9 in Setback Block Gravity Wall 041411.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

9" SETBACK BLOCKS

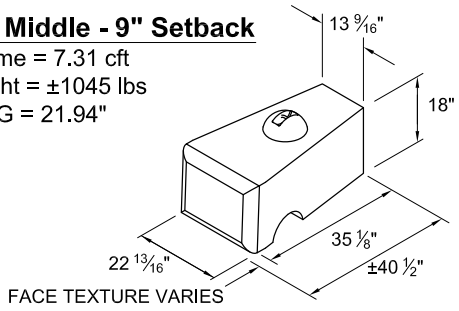
Middle - 9" Setback

Volume = 16.47 cft
Weight = ±2355 lbs
C of G = 20.80"



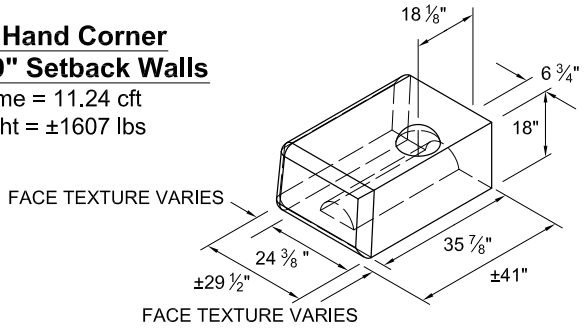
Half Middle - 9" Setback

Volume = 7.31 cft
Weight = ±1045 lbs
C of G = 21.94"



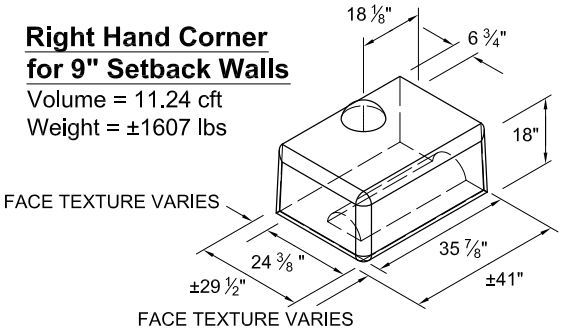
Left Hand Corner for 9" Setback Walls

Volume = 11.24 cft
Weight = ±1607 lbs



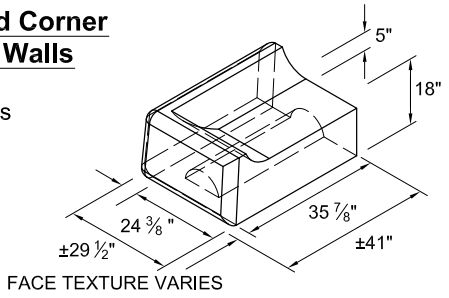
Right Hand Corner for 9" Setback Walls

Volume = 11.24 cft
Weight = ±1607 lbs



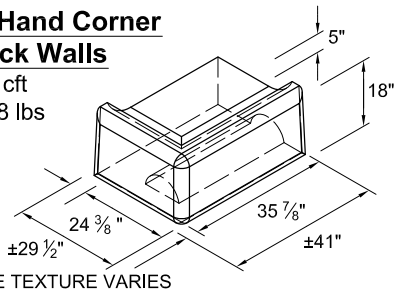
Top - Left Hand Corner for 9" Setback Walls

Volume = 9.08 cft
Weight = ±1298 lbs



Top - Right Hand Corner for 9" Setback Walls

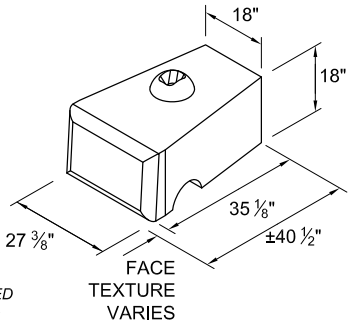
Volume = 9.08 cft
Weight = ±1298 lbs

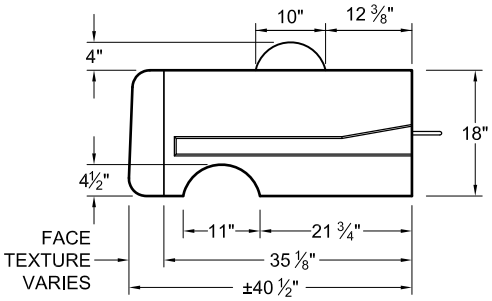


(Specialty Block) 27" Wide Middle for 9" Setback Walls

Volume = 9.32 cft
Weight = ±1332 lbs
C of G = 21.49"

(THIS SPECIALTY BLOCK MAY HAVE LIMITED AVAILABILITY AND IS ONLY USED IN DOUBLE 90° CORNER APPLICATIONS)





9" Setback Block

NOTES:

Volume and Center of Gravity (C of G) calculations are based on the blocks as shown.

Center of Gravity is measured from the back of the block.

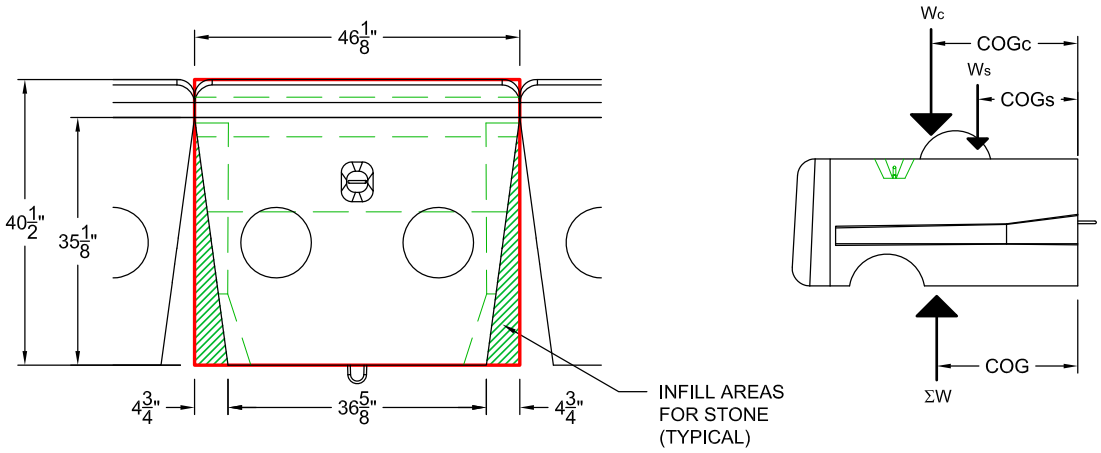
Half blocks may include a fork lift slot on one side.

Actual weights and volumes may vary.

Weight shown is based on 143 pcf concrete.

DRAWN BY: M. WALZ	05/31/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: 9in Setback Block Details 053111.dwg	REVISION: ---
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1

9" Setback Middle Block with Soil Infill



CENTER OF GRAVITY CALCULATIONS

CONCRETE

Design Unit Weight = 143 pcf

Volume (Vc)	16.47 cft (Data from CAD Model)
Center of Gravity (COGc)	20.80 in from Back of Block (Data from CAD Model)
Concrete Block Weight (Wc)	Wc = 16.44 cft x 143 pcf = 2,355 lbs

INFILL SOIL

Design Unit Weight = 120 pcf

Volume (Vs)	[½ x 4.75 x 35.125 x 18] x (1ft/12 in)^3 x 2 Sides = 1.74 cft (Includes Area Between Blocks)
Center of Gravity (COGs)	⅓ x 35.125 = 11.71 in from Back of Block
Infill Soil Weight (Ws)	Ws = 1.74 cft x 120 pcf = 209 lbs

COG CALCULATIONS

	Weight	*COG*	*Weight x COG*
Block	2,355 lb	20.80 in	48,984 lb*in
Soil	209 lb	11.71 in	2,447 lb*in
Totals	*2,564 lb*		*51,431 lb*in*

Weighted COG = Σ Weight x COG / Σ Weight
= 51,431 lb * in / 2,564 lb
= 20.1 in (From Back of Block)

FOR WALL STABILITY CALCULATIONS,
COG = 20.4" FROM THE FRONT FACE OF BLOCK

INFILLED UNIT WEIGHT CALCULATIONS

DESIGN VOLUME

40.5 in x 46.125 in x 18 in = 33,625 in^3 = 19.46 cft

WEIGHT

Concrete Block = 2,355 lb
Infill Soil = 209 lb
Total Weight = 2,564 lb

INFILLED UNIT WEIGHT

γ_{INFILL} = 2,564 lb / 19.46 cft = 131.8 pcf

FOR WALL STABILITY CALCULATIONS,
INFILLED UNIT WEIGHT, γ_{INFILL} = 130 pcf

DRAWN BY: J. JOHNSON	02/21/11	Redi-Rock® International, LLC	
CHECKED BY:			
APPROVED BY:		DRAWING FILE: COG for 9in Setback Middle Block 022111.dwg	REVISION: —
ISSUE DATE:		SCALE: NO SCALE	SHEET NO.: 1 OF 1