

QUIKWALL[®] SURFACE BONDING CEMENT

PRODUCT NO. 1230-1231

DIVISION 4

Masonry Mortar
04 05 13



PRODUCT DESCRIPTION

QUIKWALL[®] Surface Bonding Cement is an alkali resistant, fiberglass reinforced, Portland cement based surface bonding cement used for construction of dry-stack (without mortar) cement block walls.

PRODUCT USE

Surface Bonding Cements (SBC) are AR (alkali resistant) fiberglass reinforced Portland cement formulations designed for use in the construction of concrete block walls above or below grade that are dry stacked above the first course. QUIKWALL[®] SBC is a versatile product that offers many additional uses and advantages, including:

- Rehabilitating and decorating existing masonry and non-masonry structures
- Handball/racquetball court construction
- Decorating and strengthening existing block and mortar walls
- Waterproofing farm water storage tanks

Applicable for both exterior and interior use, above and below grade, QUIKWALL[®] SBC can be modified with QUIKRETE[®] Acrylic Fortifier and applied to other structural wall surfaces such as brick, concrete and terra cotta tile which are nonporous.

ADVANTAGES

- One-coat application provides both structural strength and textured finish
- Integral color capability eliminates painting
- Creates concrete block wall with greater flexural and racking strength than conventional mortar construction
- Increased productivity and lower in-place cost when using dry-stacked concept
- Improved fire, water, air and sound control properties
- Thermal insulation benefits
- Low maintenance costs
- Variety of finishes and accent capabilities
- Damp-proofing of basement walls
- No additional waterproofing necessary for water storage containers

COMPOSITION & MATERIALS

QUIKWALL[®] SBC is a Portland cement based formulation combined with 1/2" (12.7 mm) long alkali resistant (AR) glass fibers. The zirconia based AR glass fibers act as reinforcing elements and also provide resistance to the alkaline attack of the Portland cement matrix.

SIZES

- QUIKWALL[®] SBC, Sanded and Unsanded, are available in 50 lb (22.7 kg) bags.

YIELD

- Each 50 lb (22.7 kg) bag of QUIKWALL[®] SBC will cover approximately 50 ft² (4.65 m²) at 1/8" (3.2 mm) thickness.

COLORS

QUIKWALL[®] SBC Sanded is available in gray and white and can be colored with QUIKRETE[®] Stucco and Mortar Colors (#1319). Color can also be added to the product as it is mixed by adding QUIKRETE[®] Stucco and Mortar Color to the mixing water. Twenty standard colors are available. QUIKWALL[®] SBC Unsanded is available in gray only.

TECHNICAL DATA

APPLICABLE STANDARDS

American National Standards Institute (ANSI) - ANSI Standard A41.1 Building Code Requirements for Masonry (see exceptions noted)

ASTM International

- ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units
- ASTM C887 Standard Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar
- ASTM C946 Standard Practice for Construction of Dry-Stacked, Surface Bonded Walls
- ASTM E72 Standard Test Method for Conducting Strength Tests of Panels for Building Construction
- ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 75°C

Federal Specification TTP-0035

APPROVALS

- U.S. Department of Agriculture (USDA), Food, Safety and Inspection Services
 - New York State Uniform Fire Prevention and Building Code
 - Commonwealth of Pennsylvania, Dept. of Labor and Industry
 - State of Wisconsin Building Material Approval #200230-K
- Note - Products meeting ASTM C887 are accepted by BOCA, SBCCI and IBC for use in dry stack construction and for damp-proofing of basement walls.

PHYSICAL/CHEMICAL PROPERTIES

QUIKWALL® SBC meets the requirements of ASTM C887 as shown in Table 1. The QUIKWALL® SBC system of block construction provides walls of superior strength as shown in Table 2. QUIKWALL® SBC not only provides improved flexural and racking strength, but greater impact resistance. Recommended design requirements for non-reinforced surface bonded walls of hollow concrete masonry units are based on gross area of CMU.

Allowable stress - QUIKWALL® SBC meets ANSI A41.1 except as follows:

- Compressive, 45 psi (0.3 MPa)
- Shear, 10 psi (0.07 MPa)
- Flexural horizontal span, 30 psi (0.2 MPa)
- Flexural vertical span, 18 psi (0.1 MPa)

Requirements for lateral supports, minimum wall thickness, and height-to-thickness ratios are the same for QUIKWALL® SBC as for mortared construction.

ENVIRONMENTAL CONSIDERATIONS

QUIKWALL® SBC walls are almost impermeable to air and water, although they are not a vapor barrier. QUIKWALL® SBC is noncombustible and adds to the fire rating of concrete masonry units. QUIKWALL® SBC resists air penetration, sound transmission and water penetration, while at the same time providing structural strength improvement.

QUIKWALL® SBC adds thermal resistance or R-value of approximately $0.4 \text{ ft}^2 \times \text{h} \times \text{°F/Btu}$ ($0.07 \text{ m}^2 \times \text{K/W}$) to the cross section of a wall. Table 3 contains environmental property test data showing comparisons between uncoated and coated block surfaces

TABLE 1 PHYSICAL PROPERTIES OF QUIKWALL

| Flexural strength, ASTM C887 | |
|---------------------------------|---------------------|
| 1 day | 450 psi (3.1 MPa) |
| 7 days | 700 psi (4.8 MPa) |
| 28 days | 800 psi (5.5 MPa) |
| Compressive strength, ASTM C887 | |
| 1 day | 1600 psi (11 MPa) |
| 28 days | 3500 psi (24.1 MPa) |

INSTALLATION

GENERAL

QUIKWALL SBC is designed to be used in the construction of new concrete block walls where the walls are laid up dry stacked (in a running bond pattern) without mortar above the first course in

accordance with ASTM C946. Grout, reinforcing, anchorage and control joints are the same as for conventional mortared walls as designated by The American Concrete Institute (ACI) and National Concrete Masonry Association (NCMA). QUIKWALL® SBC must be applied to both sides of dry-stacked concrete block at a minimum of 1/8" (3.2 mm) thickness. Porous walls must be pre-wet prior to application of QUIKWALL® SBC to avoid water being withdrawn from the mixture. Premature drying on the wall will prevent proper hydration, thereby causing the surface to be chalky and perhaps exhibit map or craze cracking. After application of QUIKWALL® SBC and after final set is achieved, dampen QUIKWALL® SBC walls to ensure proper curing and hydration. QUIKWALL® SBC can be applied by trowel or spray. A one-coat application is all that is required as long as the surface texture is accomplished before the QUIKWALL® Surface Bonding Cement attains initial set. Walls constructed by this technique are structurally twice the flexural strength of concrete block walls built with conventional mortar.

REHABILITATING & RENOVATING WALLS

The performance characteristics of QUIKWALL® SBC make it adaptable for rehabilitating and renovating existing wall surfaces. Old walls coated with QUIKWALL® SBC on one side will exhibit structurally improved environmental properties and a new aesthetic look. The use of QUIKRETE® Acrylic Fortifier with QUIKWALL® SBC is required when application is made to other than uncoated block wall surfaces. The installation of galvanized expanded metal lath may also be required for walls that have been previously painted or coated, or structural walls to which a cementitious modified system is not adaptable due to variations in thermal expansion.

SURFACE FINISHES

QUIKWALL® SBC surfaces can be given attractive textured finishes by using suitable spray equipment or with plasterer's hand tools. Surface textures from a smooth surface finish to very deep relief stucco can be achieved. It is also possible to provide accent panels to simulate exposed aggregate concrete or to provide a simulated brick wall appearance.

MIXING

Machine mixing is recommended. Mix 1 gal (3.8 L) of clean water with each 50 lb (22.7 kg) bag of QUIKWALL® SBC. Place the water in the mixer and add the QUIKWALL® SBC to the water. Adjust water as necessary to achieve desired consistency. Do not use more than 1 1/2 gal (5.7 L) of water per bag. Mix no more than 3 minutes to avoid filamentizing the glass fibers.

CURING

QUIKWALL® SBC walls must be fog cured after having achieved final set. This is essential to ensure proper hydration of the thin surface application.

TABLE 2 STRUCTURAL PROPERTIES OF UNREINFORCED WALL ASSEMBLIES USING QUIKWALL® SBC

| | |
|--|------------------------------------|
| Compressive test, axial loading - Wall size 4' x 8' (1.2 x 2.4 m) gross area | |
| 8" (203 mm) block wall coated with Surface Bonding Cement on both sides | 350 psi (2.4 MPa) |
| 8" (203 mm) block wall made with Type S Mortar | 540 psi (3.7 MPa) |
| Flexural strength, vertical span, maximum uniform load - Wall size 4' x 8' (1.2 x 2.4 m) | |
| 8" (203 mm) block wall coated both sides with SBC Unsanded | 101 psf (493.0 kg/m ²) |
| 8" (203 mm) block wall coated both sides with SBC Sanded | 81 psf (395.3 kg/m ²) |
| 8" (203 mm) block wall made with Type S Mortar | 39 psf (190.3 kg/m ²) |
| Racking test, ultimate load/unit wall length - Wall size 4' x 4' (1.2 x 1.2 m) | |
| 8" (203 mm) block wall coated both sides with SBC Unsanded | 4155 lb/ft (6185 kg/m) |
| 8" (203 mm) block wall made with Type S Mortar | 2995 lb/ft (4458 kg/m) |
| NOTE: Independent tests in accordance with ASTM C90 hollow, load-bearing CMUs. Values are ultimate loads. Refer to Allowable Stress in Physical & Chemical Properties. | |

PRECAUTIONS

- Do not apply QUIKWALL® SBC when weather is forecast to be above 100 degrees F (38 degrees C) or below 40 degrees F (4 degrees C) within 24 hours without adapting required hot and cold weather precautions
- Only clean water should be added to the QUIKWALL® SBC. This particularly excludes the use of antifreeze in winter. The product's formulation will be altered by the addition of foreign materials. QUIKRETE® Acrylic Fortifier can be added in accordance with the manufacturer's specification
- Unsupported walls should not exceed 2 stories or 16' (4.9 m) in height
- Maximum depth of backfill should be as specified by NCMA for standard block and mortar construction
- Follow applicable building codes for steel reinforcement and core filling

WARRANTY

NOTICE: Obtain the applicable LIMITED WARRANTY: at www.quikrete.com/product-warranty or send a written request to The Quikrete Companies, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA. Manufactured under the authority of The Quikrete Companies, LLC. © 2018 Quikrete International, Inc.

PROP-65



WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov.

TABLE 3 PHYSICAL/ENVIRONMENTAL PROPERTIES OF WALL CONSTRUCTION WITH QUIKWALL® SBC

| | | | |
|--|-----------------------------|---|---------------|
| Penetration of wind driven rain on 8" (203 mm) hollow CMU, Fed. Spec. TTP-0035 | | | |
| Surface treatment | Rating | Penetration | |
| No treatment | Very Poor | 6.9 oz/sf/min (2196.5 mL/m ² /min) | |
| Two coats latex paint | Very Poor | 2.0 oz/sf/min (636.7 mL/m ² /min) | |
| 1/8" (3.2 mm) QUIKWALL® SBC | Excellent | 0.006 oz/sf/min (1.91 mL/m ² /min) | |
| Water permeability - Falling head permeameter | | | |
| Uncoated | Too High to Test | | |
| 1/8" (3.2 mm) QUIKWALL® SBC | 0.00 ml/cm ² /hr | | |
| Air permeance through 8" (203 mm) hollow CMU. Reported in cfm/100 sf (mL/min/m ²) at equivalent air pressure in inches H ₂ O (kPa). | | | |
| Surface treatment | 1" (0.25 kPa) | 2" (0.50 kPa) | 8" (2.0 kPa) |
| Uncoated | 183 (155) | 364 (308) | 702 (594) |
| Coated one side with SBC | 0.015 (0.013) | 0.035 (0.03) | 0.174 (0.147) |
| Coated both sides with SBC | 0 (0) | 0.002 (0.0017) | 0.073 (0.062) |
| Combustibility, ASTM E136 Noncombustible | | | |

* Refer to www.quikrete.com for the most current technical data, SDS, and guide specifications

