

QUIKRETE®

1. Product Name

QUIKWALL® Surface Bonding Cement #1220 - #1231

2. Manufacturer

The QUIKRETE Companies
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3. Product Description

BASIC 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, waterproofing and strengthening existing block and mortar walls
- Farm water storage coating and other applications

QUIKWALL SBC is also used to waterproof, strengthen and decorate conventional concrete block walls built with mortar. 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
- No additional waterproofing necessary, even 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. AR glass fibers give QUIKWALL SBC its great strength by acting as reinforcing elements. AR glass fibers are utilized because of their resistance to the alkaline attack of the Portland cement matrix. AR glass fibers are a zirconia based composition.

SIZES

QUIKWALL SBC, Sanded and Unsanded, is available in 50 lb (22.7 kg) bags.

YIELD

A 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.

4. 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



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APPROVALS

- U.S. Department of Agriculture (USDA), Food, Safety and Inspection Services
- U.S. Department of Housing and Urban Development (HUD) Report #1075
- New York State Uniform Fire Prevention and Building Code
- Commonwealth of Pennsylvania, Dept. of Labor and Industry
- Environmental Protection Agency (EPA) Potable Water Applications
- State of Wisconsin Building Material Approval #840022-K
- U.S. Department of Housing and Urban Development Materials (HUD) Release #1075b

Note - Products meeting ASTM C887 are accepted by BOCA, SBCCI and IBC for use in dry stack construction.

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 nonreinforced surface bonded walls of hollow concrete masonry units are based on gross area of CMU.

Allowable stress - QUIKRETE 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 ft² x h x °F/Btu (0.07 m² x K/W) to the cross section of a wall.

Table 3 contains environmental property test data showing comparisons between uncoated and coated block surfaces

5. 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, post-wet 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 SBC attains initial set. Walls constructed by this technique are structurally twice the flexural strength of concrete block walls built with 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 1/4 - 1 1/2 gal (4.7 - 5.7 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. 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 1 PHYSICAL PROPERTIES OF QUIKWALL SBC

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)

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 Part 4, Technical Data.



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

6. Availability & Cost

AVAILABILITY

QUIKWALL SBC is available at leading concrete construction supply houses and distributors. Contact QUIKRETE Construction Products for the name of the nearest dealer.

COST

The economic strengths of the QUIKWALL SBC system of construction begin with the inherent properties of concrete masonry and the fact that block can be dry stacked faster than laid in mortar. Productivity of QUIKWALL SBC con-

struction is 70% greater than conventional block and mortar.

The QUIKWALL SBC finished wall system does not require any supplemental treatments that may add to the in-place costs.

7. Warranty

The QUIKRETE Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

8. Maintenance

None required.

9. Technical Services

The QUIKRETE Companies maintain technical field representatives throughout the country. Contact a local distributor for the name and number of the nearest representative or call QUIKRETE Construction Products.

10. Filing Systems

Additional product information is available from the manufacturer.

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 Surface Bonding Cement	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 Surface Bonding Cement	0.00 ml/cm ² /hr

Air permeance through 8" (203 mm) hollow CMU. Reported in cfm/100 sf (mL/min/m²) at equivalent air pressure in inches H₂O (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