BRAMPTON BRICK

vivace

This durable concrete stone merges form and function into one, blending quality, strength and durability with beauty. Vivace's rich, bold colors and chiseled stone look add an aesthetic element that complements the surrounding landscape.

AVAILABLE STONE SIZES

VIVACE PRP*

Length 257 mm (10 1/8")
Height 79 mm (3 1/8")
Depth 90mm (3 1/2")

*Please note that our manufactured concrete masonry units that are 90mm (3-1/2") or less in height and produced as a single size will require more frequent control joint spacing. The recommended control joint spacing for this type of unit should be 50% of the control joint spacing outline by NCMA TEK Note 10-2D "Control Joints for Concrete Masonry Walls, Empirical Method".

VIVACE COMBO BUNDLE

Length 174 mm (7")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 216 mm (8 1/2")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 251 mm (10")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 292 mm (11 1/2")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 330 mm (13")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 368 mm (14 1/2")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 405 mm (16")
Height 102 mm (4")
Depth 90 mm (3 1/2")

Length 174 mm (7")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 216 mm (8 1/2")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 251 mm (10")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 292 mm (11 1/2")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 330 mm (13")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 368 mm (14 1/2")
Height 177 mm (7")
Depth 90 mm (3 1/2")

Length 405 mm (16")
Height 177 mm (7")
Depth 90 mm (3 1/2")

VIVACE LARGE COMBO BUNDLE

Length 330 mm (13")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

Length 368 mm (14 1/2")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

Length 403 mm (16")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

Length 444 mm (17 1/2")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

Length 483 mm (19")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

Length 521 mm (20 1/2")
Height 292 mm (11 1/2")
Depth 90 mm (3 1/2")

TYPICAL STONE PHYSICAL PROPERTIES

Product Property	CSA	ASTM	Typical Brampton Brick Range
Compressive Strength (min)	> 25 MPa	> 3500 psi	39 – 44.1 MPa
Absorption (max)	< 8%	< 10 lb/ft^3 (8%)	4.7% - 6.3%
Density	> 2000 kg/m3^3	> 125 lb/ft^3	2120 - 2172 kg/m^3
Based on CSA A165.2 and ASTM C1634			

STONE TEXTURE

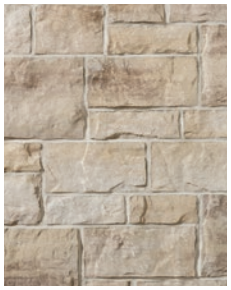
Brampton Brick produces Vivace in an embossed texture.

AVAILABLE COLORS - CANADA ONLY

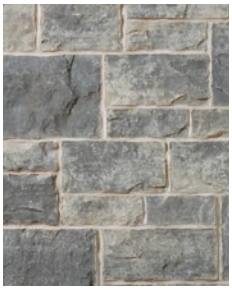
All colours in the sizes shown are Stock Item Products. Manufactured in our Hillsdale, Ontario plant.
Colors may vary due to the manufacturing process.



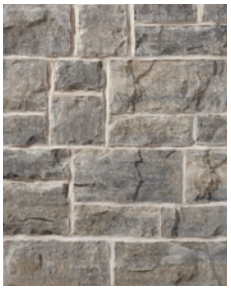


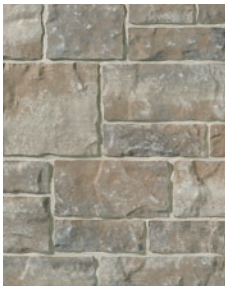

MILANO
Sizes: Combo, Large Combo, PRP


SIENA
Sizes: Combo, Large Combo, PRP


CORTONA
Sizes: Combo, Large Combo, PRP


CHARCOAL
Sizes: Combo, Large Combo, PRP


TWEED
Sizes: Combo, Large Combo


PALERMO BEIGE
Sizes: Combo, Large Combo


VERONA
Sizes: Combo, Large Combo

LEED PROGRAM

Brampton Brick can help maximize the number of LEED credits you wish to achieve by producing a product specific to your design needs. Our concrete products can be modified to achieve maximum LEED credits. Talk with your local Brampton Brick sales representative to learn how.

AVAILABLE INTEGRAL WATER REPELLENT SYSTEM

Concrete masonry manufactured with the ACM Chemistries® RainBloc® Integral Water Repellent System resists rainwater penetration because:

- individual masonry units incorporate the RainBloc® water repellent additive during their manufacture
- concrete masonry units are tested and certified for water repellency performance compliance
- masonry mortar is produced with the RainBloc® for Mortar water repellent additive at the construction site

Concrete masonry produced with the RainBloc® Integral Water Repellent System resists wind-driven rain while still maintaining vapor transmission, reducing the chance of mold, mildew, and musty smells from developing inside a building.

RainBloc® for Mortar is a liquid admixture used at the masonry construction site to make mortar. RainBloc® for Mortar should only be used with concrete or clay masonry units manufactured with RainBloc® water repellent additive in exterior masonry wall construction. To ensure your masonry wall system is completely water repellent you must remember to include the Rainbloc additive to the masonry mortar on site. Specify RainBloc Water Repellent System when designing with Finesse, Profile Series or Standard and Architectural Block.

RainBloc® for Mortar Performance in ASTM Standards and Tests RainBloc® for Mortar meets or exceeds the Performance requirements for high quality masonry mortar water repellents when tested and evaluated according to ASTM C 1384, "Standard Specification for Admixtures for Masonry Mortars". When measured by ASTM C 1072, "Standard Test Method for Measurement of Masonry Flexural Bond Strength", the RainBloc® Integral Water Repellent System does not adversely affect mortar bond. *[Ref #1]*

CODES & STANDARDS

Canadian Codes & Standards Guide
Canadian Standards Association (CSA)
Masonry Construction for Buildings: CSA A371
Fired Masonry Brick made from Clay or Shale: CSA A82
Connectors for Masonry: CSA A370
Mortar and Grout for Unit Masonry: CSA A179
For most current information on Canadian Codes and Standards, please visit: **www.csa.ca**

American Codes & Standards Guide
American Society for Testing and Materials (ASTM)
Terminology for Clay Products: C43
Test Methods for Sampling and Testing Brick and Structural Clay Tile: C67
Standard Specification for Facing Brick (Solid Masonry Units made from Clay or Shale): C216
Specification for Mortar for Unit Masonry: C270
Specification for Grout for Masonry: C476
Standard Specification for Hollow Brick (Hollow Masonry Units made from Clay or Shale: C652 For most current information on American Codes and Standards, please visit: **www.astm.org**

MANUFACTURING TOLERANCES (CSA A165.2)

CSA A165.2 limits the dimensional tolerances on standard concrete block masonry units to:

1. Width: ±2mm
2. Height: +2mm
3. Length: ±2mm

These provide a tolerance envelope in unit size, within which deviations in "out-of-square and warpage" and "within job lots" are permitted:

1. in warpage and out-of-square, dimensional variations must not exceed 2mm; and,
2. within a job lot, the maximum variation between units of a specified dimension must not exceed 2mm.

Although the term "job lot" is not defined in CSA A165.2, it is understood to be a lot intended for use on a specific job (or project) consisting of units having the same configuration, solid content, and nominal dimensions, including intended color and finish. Further to the stated limits on standard units within a job lot:

1. For masonry elements where units from one job lot are necessarily combined with units from a different job lot, their suitability for use must be assessed. For example, where special units are to be included within a masonry element constructed of standard units, before laying the units, the dimensions of the special units should be gauged for suitability of use with the standard units.

2. There are practical limits on the number of units within a job lot. Sourcing from a single lot or job lot may not be feasible over a prolonged time period. Where considerable time has passed before work recommences on a partially constructed masonry element, or before work commences on a masonry element that junctions with masonry elements constructed earlier, before laying the units, the dimensions of the units should be gauged for suitability of use with the existing.

Note that these dimensional tolerances pertain to standard concrete block masonry units. For standard units intended for architectural applications, tighter unit dimensional tolerances may be needed, and tolerances that must necessarily differ from those stated in CSA A165.2 should be stated in project specifications. Dimensional tolerances achievable for architectural units are not stated in CSA A165.2; these may vary with the unit type and between manufacturers.

PHYSICAL PROPERTIES

BRAMPTON BRICK

90mm x 390mm x 190mm
3.54" x 15.35" x 7.48"
(W x L x H)

90mm Manufactured Concrete Stone		10cm Block
		Solid
Dimensions (mm)	Equivalent thickness	90
Area (mm^2)	Gross Cross-sectional Area	3.51×10^4
Volume (mm^3)	Gross Volume	6.669×10^6
Percentage Solid	Net Volume/Gross Volume	100%
Typical Unit Mass (kg)	CSA "A" – Type "A" Concrete (2100 kg/m^3)	14.0
	CSA "B" – Type "B" Concrete (1900 kg/m^3)	12.7
	CSA "C" – Type "C" Concrete (1750 kg/m^3)	11.7
	CSA "D" – Type "D" Concrete (1650 kg/m^3)	11.0
Typical Wall Mass (kg/m^2) (with Mortar)	CSA "A" – Type "A" Concrete (2100 kg/m^3)	189
	CSA "B" – Type "B" Concrete (1900 kg/m^3)	171
	CSA "C" – Type "C" Concrete (1750 kg/m^3)	158
	CSA "D" – Type "D" Concrete (1650 kg/m^3)	149
Minimum Specified Compressive Strength (Mpa)	Based on Gross Area	15
Fire Resistance Rating (hours)	S or N of NBCC (Normal Weight)	1.4
	L220S of NBCC (Light Weight)	1.8
Sound Properties	Sound Transmission Class (STC)	
	- CSA Type "A", "B" Concrete	47
	- CSA Type "C", "D" Concrete	45
Thermal Properties (m^2 °C/W)	RSI Factors	
	- CSA Type "A", "B" Concrete	N/A
	- CSA Type "C", "D" Concrete	N/A
Moment of Inertia (mm^4)	Per Block, I	23.69×10^6
	Per Meter, Im	60.75×10^6
Section Modulus (mm^3)	Per Block, S	0.527×10^6
	Per Meter, Sm	1.350×10^6

[Ref #2]

WATER ABSORPTION

The 24-hr. absorption differs from rate of absorption (or initial rate of absorption, IRA), which is a property measured by standardized test for clay masonry products. No such standardized test exists for concrete masonry products.

Under CSA A165.2, the following maximum absorption limits are assigned to each concrete density:

Concrete Type	Concrete Density	Maximum Absorption Limit
A	Over 2000 kg/m^3	175 kg/m^3
B	1800 to 2000 kg/m^3	200 kg/m^3
C	1700 to 1800 kg/m^3	225 kg/m^3
D	Less than 1700 kg/m^3	300 kg/m^3
N	No limits	No limits

These limits are related to a measure of compaction of the unit during manufacture and its void space. The absorption test measures voids within the aggregates themselves as well as the surrounding cement paste. Because light-weight aggregates contain greater void space than normal-weight aggregates, a lower-density classification is permitted a higher absorption value than a higher density classification for the same level of compaction. The absorption of a unit, like its compressive strength, is used as an indicator of its resistance to freeze/thaw deterioration. In lieu of conducting direct freeze/thaw test on units, these properties serve as surrogate predictors of resistance. Segmental Retaining Wall (SRW) units, which are dry-cast cementitious units similar to concrete block masonry units and oftentimes manufactured by the same producers, are readily exposed to water, snow, ice, soil and salt and serve in markedly more severe exposure environments than concrete block masonry units included in building structures. Field and laboratory research on SRW units shows that units offering high compressive strengths and high density with low absorptions generally show better resistance under severe exposure conditions. The limits on 24-hr. absorption stated in A165.2 for concrete block masonry units have been used for decades. Compliant units have a proven record of good performance in Canadian building construction. This suggests that these limits indeed are below the threshold values needed for the exposure environments to which concrete block masonry is typically subjected. The stated absorption limits are sometimes misunderstood by users to be a measure of in-service water penetration resistance for masonry units. The higher absorption limits permitted for lower density concrete block masonry units are in no manner intended to imply that masonry constructed with lower density units offers comparatively less resistance to water penetration.
[Ref #3]

SEALANTS & COATINGS

Walls that have been covered with paint, water repellents, waterproofing or other coatings require periodic inspection of the condition of the coatings, and reapplication at some point will be necessary. Because of the wide range of products that can be used on concrete masonry walls, it is important to try to keep records of the coatings applied to the masonry. This will make the selection of appropriate reapplication materials much easier. The proper selection and application of coatings will improve the performance and service life of the surface. For example, consider the wide range of paints commonly used. Styrene-butadiene latex or polyvinyl acetate latex paints are inexpensive, but are usually suitable for only for interior residential walls. Oil-based and alkyd paints are more expensive and slightly more difficult to apply, but generally are longer lasting. Acrylic latex paints are the most satisfactory for exteriors from the standpoint of length of life and ease of application. Portland cement paints are lower in cost but require more labor and a longer time to cure. They are however, very long-lived. These are the most common choices of paints for masonry walls, although others are useful for special applications. When both sides of a wall are coated, the permeability of a coating or paint should always be lower on the side of the wall that is exposed to the higher vapor pressures. In warm moist regions, this means that the paint applied to the exterior of a wall should have a lower permeability to vapor than the paint applied to the inside of the same wall. Conversely, in cold dry climates, use a paint on the inside of the wall that is less permeable to water vapor than the paint on the inside of the wall. This will prevent water from passing through the coating or paint and becoming trapped within the wall. Exceptions to this rule include locker rooms, kitchens, enclosed swimming pools, or other sources of high-humidity where the interior almost always has the higher vapor pressure. Walls should be clean before paint and other coatings are applied and should generally be dry. There are some coatings, such as stucco and some water-based repellents, that require application on a damp surface. Manufacturer's instructions should always be closely followed to ensure the preparation of the surface and application is appropriate so the coatings perform as intended. On coarse textured exterior walls, it may be desirable to apply a fill coat prior to the first application of paint. Oil-based paints and alkyds should not be applied to walls that are less than six months old unless they are first treated with a solution of three percent phosphoric acid and then one to two percent zinc chloride. Paints should not be thinned except in accordance with the manufacturer's directions, and paints should be applied only when temperatures are within the recommended range. Because the condition of clear water repellents is difficult to determine, scheduled reapplication is crucial to ensure the coatings shed rainwater effectively. There are four general classifications of clear water repellents that are used on masonry walls: silane, siloxane, acrylic, and water based.

Where possible, the same, or similar type coating should be used for the reapplication. In some areas, solvent-based water repellents are no longer permitted because of local regulations on volatile organic chemicals. Therefore, some products may not be available in all regions. Consult a local design professional or building official for clear coatings that are available locally. Brampton Brick does not recommend the use of masonry sealers.

- Water absorbed by the face is released through the face
- They do not seal large cracks or poor mortar joints
- They do not allow water that migrated behind the wall to exit the wall
- They do not replace good design and workmanship

[Ref #4]

CLEANING OF NEW MASONRY

Periodic cleaning of buildings may be needed to remove dirt, stains, efflorescence, graffiti and mold. NCMA TEK 2A provides information on removing a wide range of stains and NCMA TEK 8-3A discusses control and removal of efflorescence. As a general recommendation for all cleaning efforts, care should be taken to use a cleaning method that is as non-aggressive as possible so as not to damage the masonry or surrounding materials. The cleaning agent manufacturer's recommendations should be closely followed since some products can not only damage the building, but can also cause serious injuries to personnel. Prior to starting cleaning efforts on routine stains such as rusting from nearby metals or efflorescence, the cause of the stain should be identified and remedied if possible so that further cleaning efforts are avoided. Cleaning procedures should be started in small inconspicuous areas to ensure the cleaning method is effective, non-damaging, and providing the desired results. Once the effectiveness of the cleaning method is determined it can then be applied to the entire building. *[Ref #5]*

CLEANING METHODS

The methods of cleaning concrete masonry can generally be divided into four categories: hand cleaning, water cleaning, abrasive cleaning and chemical cleaning. Cleaning by any method should be performed on an inconspicuous section of the building or a sample panel to ascertain its effect.

1. Hand Cleaning
Simple hand tools such as a trowel, chisel, stiff bristle or fiber brush, abrasive block or broken piece of masonry are first used for cleaning during construction. Steel-wire brushes should not be used because they can leave behind metal particles that may rust and stain the masonry.

2. Water Cleaning
Water cleaning involves scrubbing with water and detergent, water soaking, steam cleaning or pressure washing.

When using water cleaning methods, the amount of water used should be limited to the least amount that will effectively clean the wall, as any water that enters the wall may promote efflorescence. See Control and Removal of Efflorescence, NCMA TEK 8- 3A, for more detail. Unpainted walls can usually be cleaned by scrubbing with water and a small amount of detergent. This is a nonaggressive cleaning method that generally does not alter the masonry appearance. It may not be cost-effective for large areas, however, due to the labor involved. Clay or dirt should first be removed with a dry brush. Steelwire brushes should not be used because any metal particles left on the masonry surface may rust and stain the masonry. Nonmetal brushes such as stiff fiber or nylon are preferred. Soaking with water causes dirt deposits to swell, loosening their grip on the underlying masonry and allowing them to be flushed away with water. Again, this method may not be appropriate if efflorescence is the primary concern. Heated water is useful on greasy surfaces or during cold weather. However, when used with alkaline chemicals, warm water should not exceed 160° F (71° C). There is no significant advantage to using hot water with acid cleaners. Pressure washing equipment can be effective for surface cleaning, and is often specified for masonry restoration work to avoid the use of harsh chemicals. Water pressure should be kept to a minimum to avoid driving water into the wall which can cause efflorescence. Note that high pressures can damage masonry or alter the final appearance. Using a consistent pressure and maintaining a set distance from the wall will produce the most uniform results. If high pressure cleaning is used, it is recommended that:

a) the pressure be limited to 400 to 600 psi (2.76 - 4.14 MPa)

b) a wide flange tip be used, never a pointed tip

c) the tip be kept at least 12 in. (305mm) from the masonry surface, and

d) the spray be directed at a 45° angle to the wall (never perpendicular to the wall)

Pressure washing can also be used as an adjunct to scrubbing. The mild agitation created by brush application improves the overall cleaning results and enables the rinsing pressure to be kept to a minimum. Steam cleaning has been virtually supplanted by pressure washing. However, by supplementing heat to the water, the action of loosening and softening dirt particles and grease is improved, allowing them to be more easily rinsed away. Steam is normally generated in a flash boiler and directed toward the wall using a wand at a pressure of 10 to 80 psi (69 to 552 kPa), depending on the equipment used. Although steam cleaning is less aggressive than pressure washing, it is also slower.

3) Chemical Cleaning
Many proprietary cleansing agents are available for concrete masonry; the concrete masonry manufacturer can be consulted for recommended compatible products. Premixed chemicals eliminate many potential problems, such as those associated with mixing reactive chemicals. They are also mixed in the proper proportions to be safely used on masonry. Strict adherence to the manufacturer's directions is required, to protect both the user and the masonry, and to avoid any potentially harmful runoff. When used in conjunction with water washing techniques, chemical surfectants help dissolve contaminants and allow them to be washed away during the final rinsing process. If chemical cleaning agents are used, the surfaces to be cleaned must be thoroughly prewetted with low water pressure (maximum 30 to 50 psi, 207 to 345 kPa), cleansing agents must be diluted as directed by the manufacturer and the application pressures should be kept to a minimum. After application of the cleansing agent, the wall should be thoroughly rinsed with fresh water (preferably at low pressure), or if necessary at high pressure using the precautions discussed in the Water Cleaning section.

Chemical cleaning can be a more aggressive method than pressure washing and is often more efficient and cost effective. With proper technique, the results are uniform across the wall, although the wall's final appearance can be changed by using this method. Apply chemical cleaning solutions with low pressure spray (less than 50 psi, 345 kPa) or soft-fibered brushes. Chemical cleaning solutions can be used to clean concrete masonry without damaging the surface; avoid using raw or undiluted acids. Even diluted acids should be used with caution, and only after thoroughly prewetting the wall, as acids dissolve the cement matrix at the masonry surface and can also damage any integral water repellent at the surface. This leaves the face more porous and exposes more aggregate, thereby changing the color and texture of the masonry. In the case of masonry with an Integral water repellent, acids can also reduce the water repellency at the surface. Acids should never be applied under pressure. As a guideline, any cleaner with a pH below 4 or 5 should be considered to be acidic in nature. In addition, highly alkaline products require an acidic neutralizing afterwash as well as thorough rinsing; efflorescence can be an unwanted result if there is residual alkali.

4) Abrasive Cleaning

Abrasive cleaning is the most aggressive cleaning method, as the objective is not to wash away surface contaminants, but to remove the outer portion of the masonry in which the stain is deposited. For this reason, it should not be used on ground faced units, where the surface is smooth and polished. Although abrasive cleaning includes methods such as grinding wheels, sanding discs and sanding belts, it typically refers to grit blasting, also called sandblasting. Note that the use of silica sand is restricted in some areas due to its classification as an irritant, but many other blasting media are available.

Because it is a dry process, sandblasting will not promote efflorescence and can be performed in cold weather. As with pressure chemical cleaning, the cleaning method produces a consistent result across the wall with proper technique. Care must be exercised when using abrasive cleaning techniques since overzealous applications can cause drastic changes to the appearance, durability and water tightness of the masonry. Sandblasting can alter the appearance of the masonry by roughening the surface or exposing aggregate. This is less of a concern with split faced units. In some cases, sandblasting can accelerate deterioration by increasing surface porosity. Pretesting using a sample panel is critical when sandblasting is considered.

To minimize potential damage, softer abrasives such as crushed corn husks, walnut shells or glass or plastic beads can be used. This process, sometimes called micro-peening, is slower and more costly and generally is not applicable to large scale cleaning operations. Protective equipment and clothing must be used, including an approved respirator under a ood. Most of the dust that accompanies a dry sandblasting process can be eliminated by introducing water into the air-grit stream at the nozzle. However, the smaller particles remain a health hazard, so the same protective equipment and clothing are needed as for the dry process. The wet process requires the extra step of rinsing down the cleaned surface after blasting. Sandblasting removes any previously applied water-resistant surface coatings, so these will need to be reapplied after abrasive cleaning.
[Ref #6]

MANUFACTURING LOCATIONS

BramptonBrick.com
1.800.GO.BRICK (462.7425) (Canada)
1.844.GO.BRICK (462.7425) (USA)

Brampton
225 Wanless Drive
Brampton, ON L7A 1E9

Boisbriand
4200, Marcel-Lacasse
Boisbriand, QC J7H 1N3

Brockville
3007 County Rd. #29
PO Box 143 Brockville, ON K6V 5V2

Cambridge
1038 Rife Road
Cambridge, ON N1R 5S3

Hillsdale
2108 Flos Road Four East,
Hillsdale, ON L0L 1V0

Markham
455 Rodick Road
Markham, ON L6G 1B2

Detroit
51744 Pontiac Trail
Wixom, MI 48393

Farmersburg
1256 East County Rd. 950 N.
Farmersburg, IN 47850

References:
[1] RainBloc Brochure, Rain Water Penetration Resistance for Masonry Construction, pg 2. ACM Chemistries Inc, Norcross GA
[2] Physical Properties, Metric Technical Manual, Canadian Concrete Masonry Producers Association (CCMPA) P.O.Box 1345, 1500 Avenue Road, Toronto, ON
[3] Initial Rate of Absorption (IRA), Technical Notes, Pg 27. Clay Brick Association of Canada, PO Box 248 Burlington ON
[4] Use of Water Proofing Sealers, Technical Notes, Pg 8. Clay Brick Association of Canada, PO Box 248 Burlington ON
[5] Cleaning of New Masonry, Technical Notes, Pg 21. Clay Brick Association of Canada, PO Box 248 Burlington ON
[6] Cleaning Concrete Masonry, NCMA TEK 8-4A, Pg3. National Concrete Masonry Association, 13750 Sunrise Valley Drive, Herndon, VA