



## BUILDINGS BULLETIN 2017-003

### Technical

**Supersedes:** None

**Related Bulletin:** 2015-029

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**Purpose:** This document clarifies action plan and bracing during masonry construction.

**Related Code**

<b>Section(s):</b>	BC 1609.1	BC 1604.3.4	BC 1618	BC 1618.3
	BC 2104.6	BC 3301	RS TMS 602/ACI 530.1/	RS TMS 402/ACI 530/
	RS ASCE 7-05	BC 3307	ASCE 6, 3.3E	ASCE 5

**Subject(s):** Masonry construction bracing; bracing masonry construction for wind conditions; bracing unreinforced masonry construction; construction site protection against wind; action plan.

### Description

This bulletin clarifies the requirements for bracing masonry walls and action plans during construction for the protection of property and the public.

### Background

BC 2104.6 requires the contractor to design, provide and install bracing for masonry walls to assure such walls' stability during construction. Additionally, the permit holder is required to maintain a bracing plan onsite containing adequate details, drawings and direction necessary to ensure protection of the public and property for the duration of such masonry construction. When masonry walls are being constructed within a distance less than their height from an adjoining property or public right-of-way, a licensed and registered Professional Engineer must sign and seal such bracing plan.

### Design Criteria

The design of bracing to support masonry walls shall comply with BC 2104.6, TMS 402/ACI 530/ASCE 5, BC 1609, and ASCE 7-05. When the permit holder prepares and implements an action plan that complies with BC 1618.3 and this bulletin, bracing is permitted to be designed using reduced loads pursuant to BC 1618. When preparing the bracing plan and designing bracing support, factors such as the block density, volume and width, the placement of reinforcement within the wall, anchorage to the foundation, the type of mortar or grout used, curing and development strengths, wall configuration and the wall's aspect ratio shall be considered.. Industry accepted standards, such as NCMA TEK 3-4b and the *Standard Practice for Bracing Masonry Walls Under Construction*, provide general guidelines for masonry wall bracing but site specific conditions may require additional considerations.

## Action Plan

Pursuant to BC 1618.3, permit holders must have an action plan when using reduced loads for the design of the bracing. Such action plan must address all wind conditions up to and including the design wind speeds specified in BC 1609. Where an action plan is required for masonry construction operations, it shall be reliably implemented in one day's notice or less and, at a minimum, will:

1. Specify how workers will brace masonry walls when work is finished for the day and when wall heights reach the specified limits. Table 2 of NCMA TEK 3-4b (2005), provides bracing recommendations based on wind speed, wall height, wall thickness, reinforcement and bonding.
2. State how the responsible party will monitor wind speed at the site at all times (e.g. by meteorological stations, weather advisories, routinely calibrated instrumental methods and/or visual methods such as the Beaufort Wind Scale).
3. Where applicable, establish a safety zone, standoff distances or a standoff perimeter, located at each side of the wall's face. This zone shall not extend beyond the property line. Where a site does not allow for a safety zone or where the work cannot avoid an adjoining public right-of-way or pedestrians within the safety zone, bracing and proper protection of the public as required in BC 3307 is needed.
4. Identify the party or parties responsible for monitoring wind conditions, notifying the appropriate parties when winds exceed – or are expected to exceed – the established wind speed thresholds, and initiating the action plan measures.
5. Establish and document procedures for safely evacuating the site and training workers on such procedures.
6. Specify when to add or remove structural and/or nonstructural elements, remove loads or create sacrificial elements so that the structure may resist unreduced forces as required for permanent structures.
7. Specify how and where to tie down any loose construction materials or debris when high winds are expected and at the end of each day.
8. Identify a responsible party for effectuating the action plan.

*NOTE: Worker safety requirements for masonry construction as found in OSHA 1926.706 require a restricted zone equal to the height of the unbraced wall, measured at right angles on each side of an unrestrained wall along its entire length, plus four feet.*

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10785](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10785)

## Referenced Standards

1. NCMA TEK 3-4B - *Bracing Concrete Masonry Walls During Construction* 2005 ([www.ncma.org](http://www.ncma.org))
2. MCAA - *Standard Practice for Bracing Masonry Walls Under Construction*, July 2001, developed by the Council For Masonry Wall Bracing.