

2020 BAM Cantilevered Lookout Foundation Guide

SCOPE OF WORK:

These drawings are an illustrative representation of an alternative option to Minnesota Rule Section 1309.0404 Tables R404.1.1(5) thru (7) for the construction of cast-in-place concrete, insulated concrete form, and masonry cantilevered wall cases. These drawings apply to the construction of cast-in-place concrete, insulated concrete form, and masonry cantilevered foundation walls for typical residential cases. These drawings are not to scale and all conditions are to be verified by the contractor. Means and methods of construction for shoring, water-proofing, insulation, flashing, control and construction joints, and all other non-structural requirements are to be by others in accordance with the Code and standard industry practice. These drawings are valid through December 31, 2020.

The drawings are to only be used by the Builder's Association of Minnesota (BAM) and its members. Refer to BAM's website for the most current version of these drawings. These drawings are to be provided to the building inspection department as part of the permit package.

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- S5 - Cantilevered/Tall Lookout Masonry Wall Detail
- S6 - Footing Size and Rebar Table for Masonry Walls

MATERIALS:

Reinforcing Steel: Grade 40 (40 ksi) for #4 and smaller bars
Grade 60 (60 ksi) for #5 bars and larger

Concrete: Minimum 28 day compressive strength (F'c) of 3000 psi for walls
Minimum 28 day compressive strength (F'c) of 5000 psi for footings
Footings may be 3000 psi if an approved admixture is used to achieve a water and vapor resistance equivalent to 5000 psi

Masonry: Minimum 28 day prism strength (F'm) of 1500 psi

Backfill Soil: Sand - 30 psf/ft effective lateral pressure
Sandy Clay (SC) - 45 psf/ft effective lateral pressure
Clay - 60 psf/ft effective lateral pressure

Soil Bearing Pressure: 1500 psf minimum

SITE ADDRESS:

Street: _____

City: _____

State: MN Zip: _____



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed professional engineer under the laws of the state of Minnesota.

Craig Oswell, PE (MN #42341)

1/1/2020

Oswell Engineering and Consulting, L.L.C.

Project Name: 2020 BAM Cantilevered Foundation Wall Guide
Description: Scope of Work, Index, and Certification
Project #: 19.101
Client Name: Builder's Association of Minnesota (BAM)

1901 E Hennepin Ave, #201

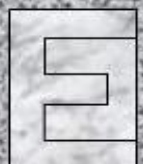
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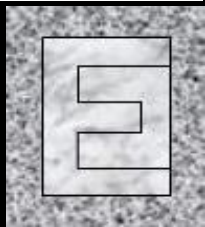
GENERAL NOTES:

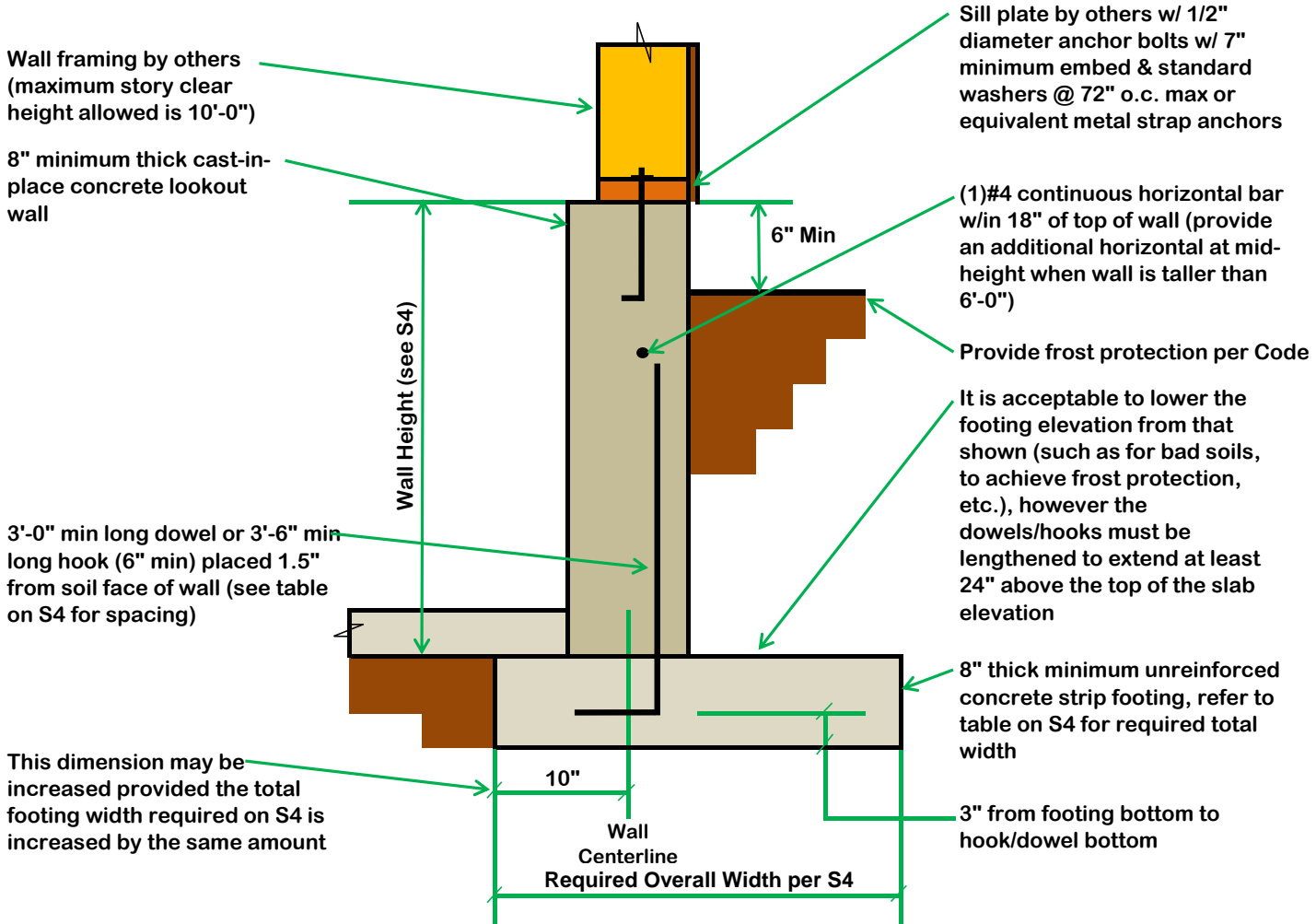
1. Wall thicknesses noted are nominal unless specifically stated otherwise. Maximum tolerance is 1/2".
2. Maximum wall to footing offset from dimensions shown is 2".
3. Place matching hooks around all wall corners and intersections for each horizontal bar.
4. Horizontal bars may be placed anywhere within the wall thickness provided 2" minimum cover is provided.
5. Bar laps when required are to be at least 40 diameters for grade 40 bars and 60 diameters for grade 60 bars.
6. Allowable bar placement tolerance is 1/2". Tying is not required if tolerances are met and maintained.
7. Slope grade 6" minimum downward away from foundations within first 10 feet or provide Code compliant swale.
8. Do not backfill until the concrete has reached at least 70 percent of the 28 day concrete strength. Use of adequate shoring is required until the final floor and slab systems are in place.
9. This packet applies to cantilevered lookout walls at stories less than ten feet in clear height. This packet does not apply to full height or frost style walls. The details in this packet are not limited by wall length or plan dimensions.
10. Dowels must be wet set or epoxy grouted in place. Hooks must be wet set.
11. Hook spacings in tables on S4 and S6 may be doubled for #5 bars and tripled for #6 bars. Hook spaces may be increased by 1.5 times if grade 60 #4 bars are used instead of grade 40 as noted. Maximum spacing in any case is 72" on center. Dowel spaces may not be modified in this way.

Oswell Engineering and Consulting, L.L.C.

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Description: General Notes
Project #: 19.101
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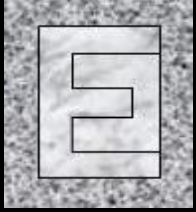




CANTILEVERED CONCRETE LOOKOUT WALL DETAIL

Oswell Engineering and Consulting, L.L.C.
 Project Name: 2020 BAM Cantilevered Foundation Wall Guide
 Description: Cantilevered Concrete Lookout Wall Detail (NOT TO SCALE)
 Project #: 19.101
 Client Name: Builder's Association of Minnesota (BAM)

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#4 DOWEL/HOOK SPACING AND FOOTING SIZE FOR CANTILEVERED CONCRETE WALLS

WALL HEIGHT (Bottom of slab to top of wall)	8" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
			1500 psf	2000 psf			1500 psf	2000 psf			1500 psf	2000 psf
4'-0" or Less	30"	54"	20"	20"	24"	48"	20"	20"	24"	36"	20"	20"
5'-0"	18"	36"	22"	20"	12"	24"	24"	22"	12"	18"	26"	24"
6'-0"	12"	24"	26"	24"	6"	18"	30"	28"	6"	12"	34"	30"

(1) = Footing width based on soil bearing capacity noted

WALL HEIGHT (Bottom of slab to top of wall)	10" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
			1500 psf	2000 psf			1500 psf	2000 psf			1500 psf	2000 psf
4'-0" or Less	42"	72"	20"	20"	36"	60"	20"	20"	30"	48"	20"	20"
5'-0"	24"	48"	22"	20"	18"	36"	24"	22"	18"	24"	26"	24"
6'-0"	18"	30"	26"	24"	12"	18"	30"	28"	12"	18"	34"	30"
7'-0"	12"	18"	32"	28"	6"	12"	38"	34"	6"	12"	42"(2)	36"

(1) = Footing width based on soil bearing capacity noted

(2) = Footing is to be 10" thick minimum

WALL HEIGHT (Bottom of slab to top of wall)	12" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
			1500 psf	2000 psf			1500 psf	2000 psf			1500 psf	2000 psf
4'-0" or Less	48"	72"	20"	20"	42"	72"	20"	20"	36"	60"	20"	20"
5'-0"	30"	54"	22"	20"	24"	42"	24"	22"	24"	36"	26"	24"
6'-0"	18"	36"	26"	24"	18"	24"	30"	28"	12"	24"	34"	30"
7'-0"	12"	24"	32"	28"	12"	18"	38"	34"	6"	12"	42"(2)	36"

(1) = Footing width based on soil bearing capacity noted

(2) = Footing is to be 10" thick minimum

Oswell Engineering and Consulting, L.L.C.

Project Name: 2020 BAM Cantilevered Foundation Wall Guide

Description: Rebar and Footing Size Table for Concrete

Project # 19.101

Client Name: Builder's Association of Minnesota (BAM)

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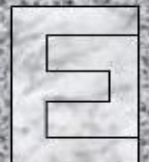
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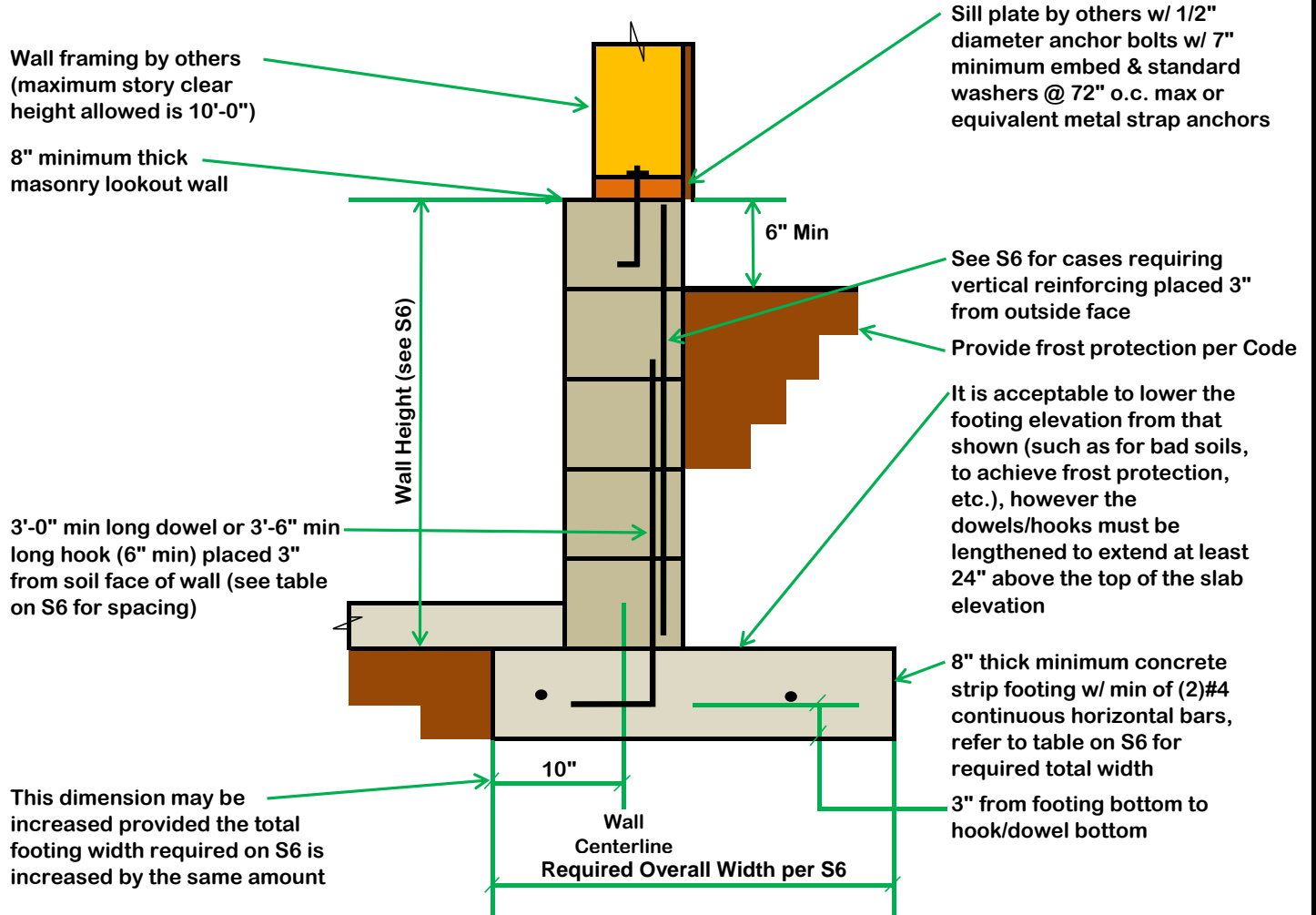
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CANTILEVERED MASONRY LOOKOUT WALL DETAIL

Oswell Engineering and Consulting, L.L.C.

Project Name: 2020 BAM Cantilevered Foundation Wall Guide

Description: Cantilevered Masonry Lookout Wall Detail (NOT TO SCALE)

Project # 19.101

Client Name: Builder's Association of Minnesota (BAM)

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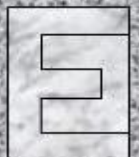
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#4 DOWEL/HOOK SPACING AND FOOTING SIZE FOR CANTILEVERED MASONRY WALLS

WALL HEIGHT (Bottom of slab to top of wall)	8" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
1500 psf			2000 psf	1500 psf			2000 psf	1500 psf			2000 psf	
4'-0" or Less	24"	40"	20"	20"	16"	32"	20"	20"	16"	24"	22"	20"
4'-8"	16"	32"	20"	20"	16"	24"	24"	22"	8"	16"	26"	24"
5'-4"	16"(48")	24"(48")	24"	22"	8"(48")	16"(48")	28"	26"	8"(40")	16"(40")	30"	28"
6'-0"	8"(40")	16"(40")	26"	24"	8"(32")	8"(32")	32"	28"	8"(24")	8"(24")	34"	32"

(1) = Footing width based on soil bearing capacity noted

Note: Values in () are spacings for required #4 vertical bars (see S5)

WALL HEIGHT (Bottom of slab to top of wall)	10" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
1500 psf			2000 psf	1500 psf			2000 psf	1500 psf			2000 psf	
4'-0" or Less	32"	56"	20"	20"	24"	48"	20"	20"	24"	40"	22"	20"
4'-8"	24"	40"	20"	20"	16"	32"	24"	22"	16"	24"	26"	24"
5'-4"	16"	32"	24"	22"	16"	24"	28"	26"	8"(48")	16"(48")	30"	28"
6'-0"	16"(48")	24"(48")	26"	24"	8"(48")	16"(48")	32"	28"	8"(32")	16"(32")	34"	32"
6'-8"	8"(40")	16"(40")	30"	28"	8"(32")	16"(32")	36"	32"	8"(24")	8"(24")	40"	36"

(1) = Footing width based on soil bearing capacity noted

Note: Values in () are spacings for required #4 vertical bars (see S5)

WALL HEIGHT (Bottom of slab to top of wall)	12" THICK WALL											
	SAND SOIL				SANDY CLAY SOIL				CLAY SOIL			
	Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)		Dowel Spacing	Hook Spacing	Footing Width (1)	
1500 psf			2000 psf	1500 psf			2000 psf	1500 psf			2000 psf	
4'-0" or Less	40"	72"	20"	20"	32"	64"	20"	20"	32"	56"	22"	20"
4'-8"	32"	56"	20"	20"	24"	40"	24"	22"	24"	32"	26"	24"
5'-4"	24"	40"	24"	22"	16"	32"	28"	26"	16"	24"	30"	28"
6'-0"	16"	32"	26"	24"	8"	24"	32"	28"	8"(48")	16"(48")	34"	32"
6'-8"	16"(48")	24"(48")	30"	28"	8"(40")	16"(40")	36"	32"	8"(32")	16"(32")	40"	36"

(1) = Footing width based on soil bearing capacity noted

Note: Values in () are spacings for required #4 vertical bars (see S5)

Oswell Engineering and Consulting, L.L.C.

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Description: Rebar and Footing Size Table for Masonry

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