

Floodproof Construction Requirements



CITY OF FARGO BUILDING INSPECTION DEPARTMENT

Updated June 2025

This handout does not address any covenants or easements assigned to the property, nor does it relieve you of code compliance with items which may not have been included from the International Codes.

REQUIREMENTS TO OBTAIN A BUILDING PERMIT FOR FLOODPROOF CONSTRUCTION

ALL PLANS MUST BE DRAWN TO SCALE

1. Most current version of the Residential Basement Floodproofing Certificate signed by a State of North Dakota registered professional engineer. Required before permit issuance.
2. Plot plan showing existing elevations of property.
3. Plot plan showing exact location of new building or addition and existing buildings.
4. Floor plan(s) of new building(s).
5. Elevation views of two sides of the building. Elevation plans must show grade.
6. Foundation wall sections showing required construction details per City floodproof specifications. (See enclosed details.)
7. Foundation plans showing drain tile location and footings.

THE FOLLOWING ITEMS ARE INCLUDED IN THIS PACKET

1. Typical Floodproofing Construction Requirements Exhibit
2. Foundation and basement wall structural details from *Floodproof Basement Structural Design Requirements Report*, created by KLJ, created: December 17, 2014, Revision 1: April 9, 2015, Revision 2: June 12, 2025.
3. **For informational purposes only** – Inspection log for foundation. Actual log is completed electronically and done by City of Fargo Inspection Department.
4. FEMA Residential Basement Floodproofing Certificate.
5. FEMA Non-Residential Floodproofing Certificate.

A CERTIFICATE OF OCCUPANCY WILL BE REQUIRED BEFORE BUILDING OCCUPANCY



CITY OF FARGO POLICY STATEMENT FOR FLOODPROOFING ELEVATION REQUIREMENTS

Referenced to the following:

Fargo Municipal Code Article 21-06 (Flood Plain Management)
Floodproofing Code of the City of Fargo, North Dakota, prepared by Moore Engineering, Inc.,
Revised December 9, 1975

Applicable to the following:

This Policy Statement shall regulate development within City of Fargo City Limits and Extra Territorial Areas. The specific area governed by this policy is the FEMA Special Flood Hazard Area (SFHA), also known as the 1% annual chance floodplain.

I. All Structures

All structures, including but not limited to, residential, commercial, and industrial construction within the city limits and extra territorial areas shall meet the following requirements:

- A. Floodway Setback
All structures must be set back 100' from the FEMA designated floodway line.
- B. Watercourse Setbacks
All provisions of the Minimum and Limited Disturbance Setbacks Zones as identified under City Municipal Code §20-0508 shall be met.
 - 1. One accessory structure not to exceed 120 square feet shall be allowed in the Limited Disturbance Setback Zone as specified in the above referenced Code.
- C. Primary Flood Protection Line
 - 1. All properties adjacent to a river, drainage ditch or other flooding source, as determined by the City Engineer, must include a primary flood protection line.
 - 2. Primary flood protection line elevation shall be the FEMA Base Flood Elevation (BFE) plus 4.0'.
 - 3. Primary flood protection line must be constructed throughout a proposed development (not on a lot by lot basis) prior to issuance of any building permits.
 - a. Plats approved by City Commission prior to March 4, 2014 may have a primary flood protection line constructed on a lot by lot basis. Protection line must be completed at the time of issuance of occupancy certificate.
 - 4. Primary flood protection line shall be constructed according to the City of Fargo Standard Specifications, Section 3600.
- D. Letter of Map Revisions (LOMR)
The City of Fargo encourages construction outside of the FEMA SFHA and requires removal from the SFHA by a Letter of Map Revision via fill (LOMR-F).
 - 1. All fill placement shall follow the current City of Fargo Standard Specifications for Construction, Section 3600.
 - 2. No more than five feet (5') of fill may be placed for buildings in areas removed from the FEMA SFHA by a LOMR-F

- a. Fill in excess of five feet may be permitted, provided the fill is Engineered fill designed by a State of North Dakota registered professional engineer and the design plan is provided to the City in advance of construction.
 3. All structures constructed within LOMR-F areas must meet all floodproofing codes.
- E. Infrastructure Elevations for New Construction
1. All streets are to be constructed to a minimum of FEMA BFE minus 0.5' at the low point (Back of Curb to be at FEMA BFE).
 2. All sanitary sewer facilities, including private sewer connection manholes, cleanouts, etc. must be protected to an elevation equal to the FEMA BFE. Protection measures include sealing and/or elevating.
 3. Storm sewer structures at the point of the storm sewer system crossing the line of protection shall be protected to a level as determined by the City Engineer.
- F. Certifications
1. Elevation Certificates are required for all floodproofed structures.
 2. Pre-Construction Residential Basement Floodproofing Certificate or Non-Residential Floodproofing Certificate is required for floodproof foundations, and must be provided to the City at the time the Building Permit is requested.

II. Structures Within the SFHA or LOMR-F Areas (See Exhibit A)

All construction within the SFHA or LOMR-F areas, as determined by the City Engineer, shall meet all floodproofing codes, in addition to the following elevation and fill requirements:

- A. Elevations
- Lowest opening including top of window wells Equal to FEMA BFE plus 2.0'
 - Fill adjacent to a building Equal to FEMA BFE plus 1.5'
 - Fill 15' away from buildings At or above FEMA BFE
- B. All underground parking must comply with floodproofing codes, including the above specified elevation and fill requirements. To provide a continuous line of protection, the area parallel to the ramp, as well as the top of ramp, must be at an elevation equal to the FEMA BFE plus 2.0'. This ramp area must also be included in the LOMR-F for the building.
- C. Elevations of detached, non-primary, slab on grade structures, which are not served by the City's water or sanitary sewer systems, shall have the elevation of the finished floor to be at or above the FEMA BFE plus 1.0'.
- D. Structures within a LOMR-F area with a proposed depressed loading dock will be allowed to have the loading dock area below the specified adjacent ground elevations if the building is a slab on grade with the lowest finished floor elevation of the structure at the FEMA BFE plus 2.0'.

III. Structures Outside the SFHA or LOMR-F Areas

A. Elevations

- Lowest opening including window wells Equal to the elevation of the back of the curb directly adjacent to the lot plus 2.5'
- Fill adjacent to a building Equal to the elevation required for the lowest opening minus 0.5'

B. Foundations

1. If no portion of the building is within the SFHA or a LOMR-F area, but any portion of the lot it sits on is within the SFHA or a LOMR-F area, standard concrete foundations are required, and floodproof construction is recommended.
2. If no portion of the lot that a building sits upon is within the SFHA or LOMR-F area, there are no floodproof construction requirements, although concrete foundations and/or floodproof construction is recommended.

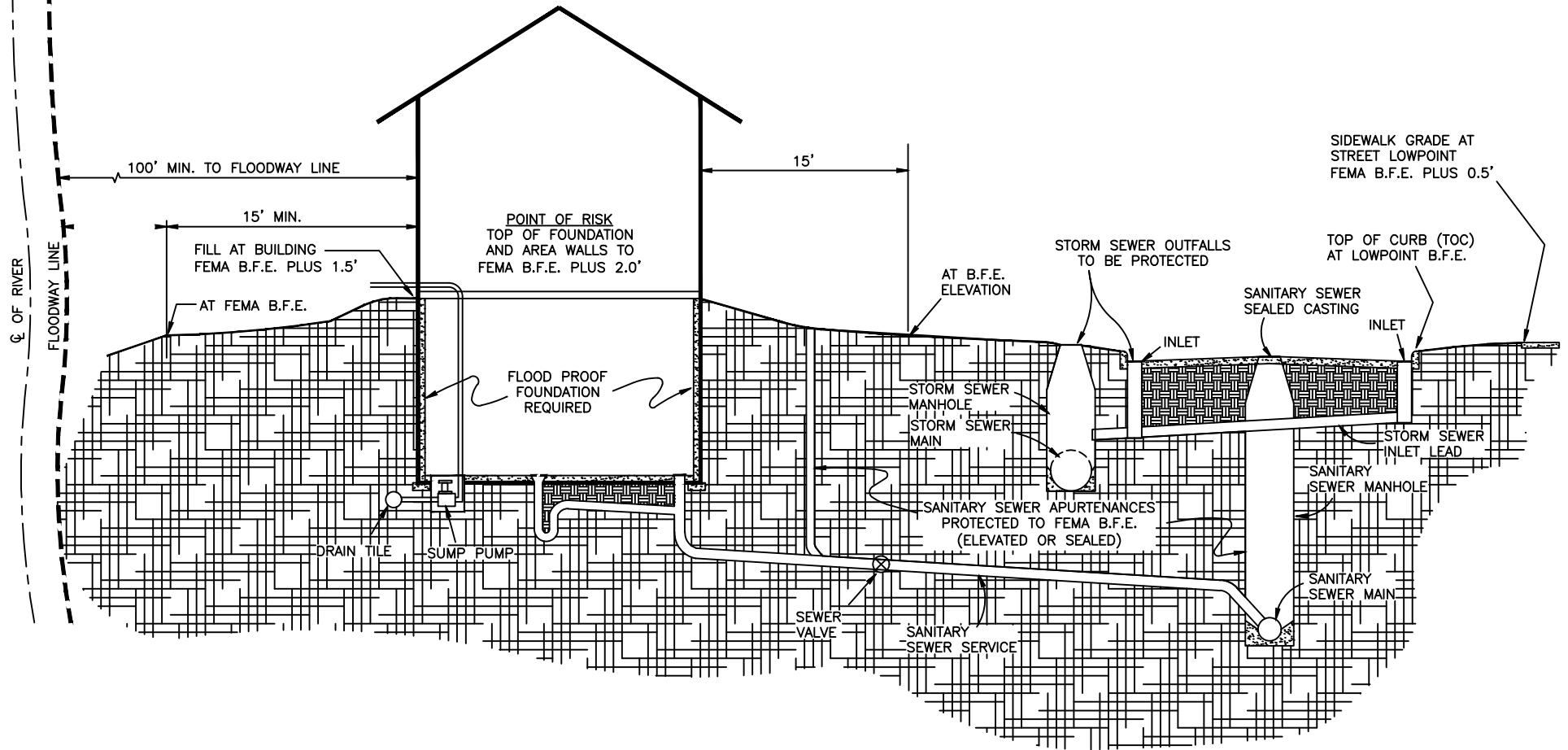


APPENDIX A

TYPICAL FLOODPROOFING CONSTRUCTION REQUIREMENTS EXHIBIT

MDZS: MINIMUM DISTURBANCE ZONE SETBACK
350' FROM RIVER ϕ OR FLOODWAY
(WHICHEVER IS GREATER)

LDZS: LIMITED DISTURBANCE ZONE SETBACK
MDZS + 100'



STRUCTURES WITHIN THE SFHA OR LOMR-F AREAS

Flood Proofing Construction Requirements Exhibit "A"

Scale: NTS



APPENDIX B

FLOODPROOF BASEMENT STRUCTURAL REQUIREMENTS REPORT

Table 1A: Minimum Reinforcement Requirements for Floodproofed Basement Walls - Full Height Walls (65 pcf)

Case A: Allows for minimum anchorage at the top of the wall

Case B: Allows for maximum spacing between perpendicular walls

Wall Height (ft)	Case	Wall Thickness (in)	Vertical Reinforcing	Horizontal Reinforcing	Maximum Horizontal Distance between Perpendicular Foundation Walls (ft) ⁷	Dowel Spacing (ft)				
7.5	A	8	# 4 @ 24 " o.c.	# 4 @ 18 " o.c.	7.5	4'-0" o.c.				
		10		# 5 @ 28 " o.c.						
				# 6 @ 40 " o.c.						
				# 4 @ 12 " o.c.						
				# 5 @ 18 " o.c.						
				# 6 @ 28 " o.c.						
	12	# 4 @ 9 " o.c.								
		# 5 @ 15 " o.c.								
		# 6 @ 21 " o.c.								
		B ¹³	8	# 4 @ 24 " o.c.	# 4 @ 22 " o.c.	15	1'-10" o.c.			
					# 5 @ 30 " o.c.					
					# 6 @ 44 " o.c.					
10	# 4 @ 24 " o.c.									
	# 5 @ 36 " o.c.									
	# 6 @ 52 " o.c.									
12	# 4 @ 18 " o.c.									
	# 5 @ 28 " o.c.									
	# 6 @ 38 " o.c.									
8	A		8		# 4 @ 24 " o.c.			# 4 @ 18 " o.c.	8	2'-0" o.c.
			10					# 5 @ 28 " o.c.		
								# 6 @ 40 " o.c.		
		# 4 @ 12 " o.c.								
		# 5 @ 18 " o.c.								
		# 6 @ 28 " o.c.								
		# 4 @ 9 " o.c.								
		# 5 @ 15 " o.c.								
		# 6 @ 21 " o.c.								
	B	8	# 4 @ 24 " o.c.	# 4 @ 18 " o.c.	16	1'-6" o.c.				
				# 5 @ 26 " o.c.						
				# 6 @ 40 " o.c.						
		10		# 4 @ 24 " o.c.						
				# 5 @ 36 " o.c.						
				# 6 @ 52 " o.c.						
		12		# 4 @ 18 " o.c.						
				# 5 @ 28 " o.c.						
				# 6 @ 38 " o.c.						
9	A	8	# 4 @ 24 " o.c.	# 4 @ 14 " o.c.	9	2'-0" o.c.				
		10		# 5 @ 22 " o.c.						
				# 6 @ 28 " o.c.						
				# 4 @ 12 " o.c.						
				# 5 @ 18 " o.c.						
				# 6 @ 28 " o.c.						
				# 4 @ 9 " o.c.						
				# 5 @ 15 " o.c.						
				# 6 @ 21 " o.c.						
	B	8	# 4 @ 24 " o.c.	# 4 @ 12 " o.c.	18	1'-0" o.c.				
				# 5 @ 18 " o.c.						
				# 6 @ 26 " o.c.						
		10		# 4 @ 16 " o.c.						
				# 5 @ 24 " o.c.						
				# 6 @ 36 " o.c.						
		12		# 4 @ 18 " o.c.						
				# 5 @ 28 " o.c.						
				# 6 @ 38 " o.c.						

Notes:

- Chart is based on an active soil pressure of 65 pounds per cubic foot (pcf).
- Reinforcing steel shall be ASTM A615 with a yield stress, F_y , of 60,000 pounds per square inch (psi).
- Vertical reinforcing bars shall be placed between 1-1/2 and 2-1/2 inches from the inside face of the wall.
- Minimum concrete strength, f_c , shall be 3,000 pounds per square inch (psi).
- Maximum height of soil against foundation walls is 6 inches below top of wall.
- Backfill shall not be placed until first floor framing and sheathing is installed and fastened or adequately braced and the concrete floor slab is in place or the wall is adequately braced.
- Minimum length of perpendicular wall or "jog" shall be 2 feet. Perpendicular wall shall be the same thickness and reinforcing as wall it supports, and may be up to 1'-0" less in height than foundation wall. Perpendicular walls must be placed on minimum 1'-8" strip footing placed integral with foundation wall footing. Window wells are considered to be a perpendicular wall.
- Refer to Table 1B for connection requirements at the top of the wall.
- Refer to Figure 1 for basement wall detail.
- Refer to Figure 4A for reinforcing at wall corners.
- Refer to Figure 4B for reinforcing at openings in walls.
- Refer to Figure 5 for wall bracing at foundation walls parallel to floor trusses.
- Use 7'-6", Case B, for crawl space walls.

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Table 1B: Minimum Connection Requirements for Floodproofed Basement Walls - Full Height Walls (65 pcf)

Case A: Allows for minimum anchorage at the top of the wall

Case B: Allows for maximum spacing between perpendicular walls

Wall Height (ft)	Case	Sill Plate	Optional Top Plate Nailing Pattern	Anchor Bolt ¹²	Connection @ Truss	Bracing @ Walls Parallel to Trusses ¹¹	
						Max. Spacing	Conn. to Sill Plate
7.5	A	2-2x	16d @ 6 " o.c.	1/2" ϕ @ 20 " o.c.	A34 @ ea. Truss	4'-0"	2-A35 Clips
				5/8" ϕ @ 26 " o.c.			
				3/4" ϕ @ 32 " o.c.			
	B ¹³	2-2x	16d @ 3 " o.c.	1/2" ϕ @ 11 " o.c.	2-A35 @ ea. Truss	2'-2"	2-A35 Clips
				5/8" ϕ @ 14 " o.c.			
				3/4" ϕ @ 18 " o.c.			
8	A	2-2x	16d @ 5 " o.c.	1/2" ϕ @ 18 " o.c.	A35 @ ea. Truss	3'-6"	2-A35 Clips
				5/8" ϕ @ 24 " o.c.			
				3/4" ϕ @ 30 " o.c.			
	B	2-2x	16d @ 3 " o.c.	1/2" ϕ @ 9 " o.c.	2-A35 @ ea. Truss	1'-10"	2-A35 Clips
				5/8" ϕ @ 12 " o.c.			
				3/4" ϕ @ 15 " o.c.			
9	A	2-2x	16d @ 4 " o.c.	1/2" ϕ @ 14 " o.c.	A35 @ ea. Truss	2'-9"	2-A35 Clips
				5/8" ϕ @ 18 " o.c.			
				3/4" ϕ @ 22 " o.c.			
	B	2-2x	16d @ 2 " o.c.	1/2" ϕ @ 8 " o.c.	2-A35 @ ea. Truss	1'-6"	2-A35 Clips
				5/8" ϕ @ 10 " o.c.			
				3/4" ϕ @ 12 " o.c.			

Notes:

- Chart is based on an active soil pressure of 65 pounds per cubic foot (pcf).
- Anchor bolts shall be ASTM F1554 Grade 36.
- Minimum clear distance between bolt and edge of concrete shall be no less than 2 inches.
- Minimum concrete strength, f'_c , shall be 3,000 pounds per square inch (psi).
- Maximum height of soil against foundation walls is 6 inches below top of wall.
- Backfill shall not be placed until first floor framing and sheathing is installed and fastened or adequately braced and the concrete floor slab is in place or the wall is adequately braced.
- Refer to Table 1A for reinforcing requirements.
- Refer to Figure 1 for basement wall detail.
- Refer to Figure 4A for reinforcing at wall corners.
- Refer to Figure 4B for reinforcing at openings in walls.
- Refer to Figure 5 for wall bracing at foundation walls parallel to floor trusses.
- Use (2) 2x6 sill plates @ 1/2" and 5/8" anchor bolts Use (2) 2x8 sill plates @ 3/4" anchor bolts. Center bolts in sill plate
- Use 7'-6", Case B, for crawl space walls.

Table 2: Minimum Reinforcement for Floodproofed Basement Walls - Bi-Level Walls (65 pcf)

Wall Height, H (ft)	Wall Thickness (in)	Vertical Reinforcing	Horizontal Reinforcing
5 (max)	8	# 4 @ 18 " o.c.	# 4 @ 24 " o.c.
		# 5 @ 30 " o.c.	
		# 6 @ 40 " o.c.	
	10	# 4 @ 18 " o.c.	
		# 5 @ 26 " o.c.	
		# 6 @ 36 " o.c.	
	12	# 4 @ 12 " o.c.	
		# 5 @ 20 " o.c.	
		# 6 @ 28 " o.c.	

Notes:

1. Chart is based on an active soil pressure of 65 pounds per cubic foot (pcf).
2. Reinforcing steel shall be ASTM A615 with a yield stress, F_y , of 60,000 pounds per square inch (psi).
3. Vertical reinforcing bars shall be placed between 1-1/2 and 2-1/2 inches from the outside face of the wall.
4. Minimum concrete strength, f'_c , shall be 3,000 pounds per square inch (psi).
5. Maximum height of soil against foundation walls is 6 inches below top of wall.
6. Refer to Figure 2 for basement wall detail.
7. Refer to Figure 4A for reinforcing at wall corners.
8. Refer to Figure 4B for reinforcing at openings in walls.

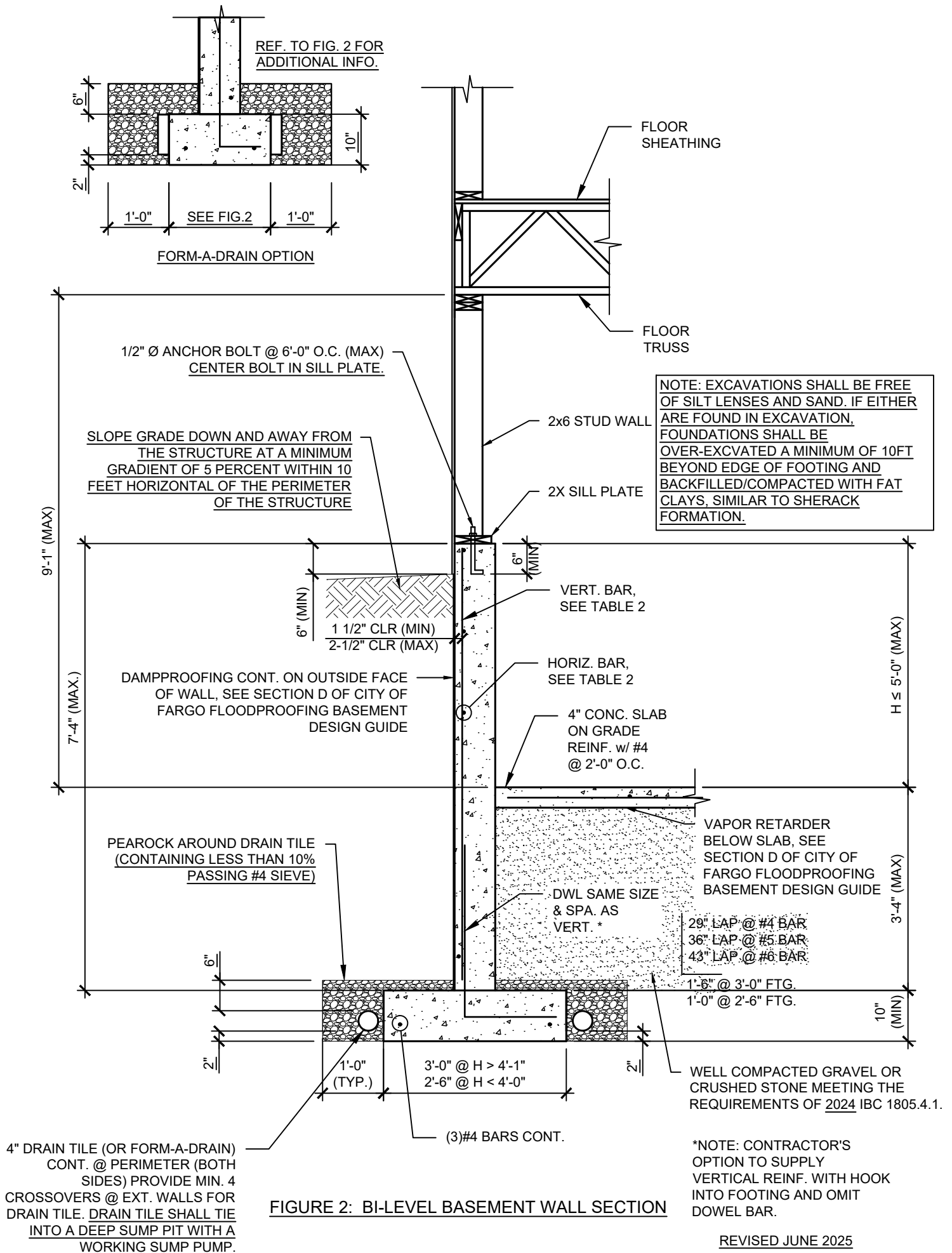
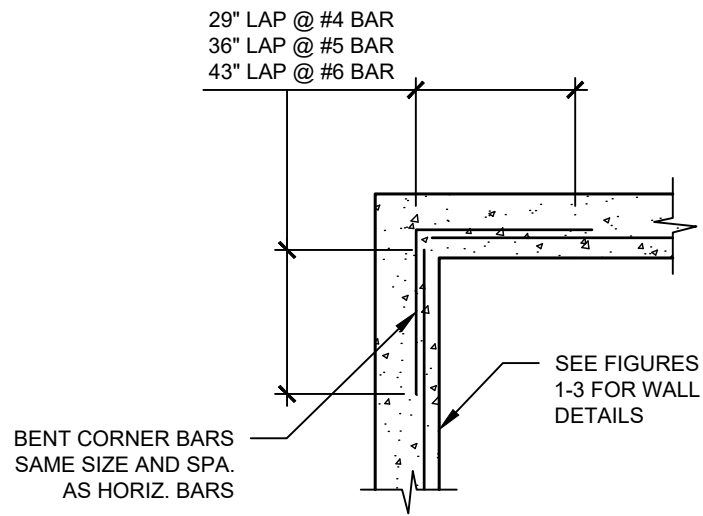


Table 3: Minimum Reinforcement for Floodproofed Basement Walls - Window Well Walls (65 pcf)

Wall Height (ft)	Wall Thickness (in)	Horizontal Reinforcing	Vertical Reinforcing	Max. Horizontal Span between Perpendicular Foundation Walls (ft) ⁹
7.5	6	# 4 @ 24 " o.c.	# 4 @ 24 " o.c.	4'-0"
		# 4 @ 18 " o.c.		5'-0"
		# 4 @ 12 " o.c.		6'-6"
	8	# 4 @ 18 " o.c.	# 4 @ 24 " o.c.	6'-0"
		# 4 @ 12 " o.c.		7'-6"
		# 4 @ 9 " o.c.		10'-0"
8	6	# 4 @ 24 " o.c.	# 4 @ 24 " o.c.	4'-0"
		# 4 @ 18 " o.c.		5'-0"
		# 4 @ 12 " o.c.		6'-6"
	8	# 4 @ 18 " o.c.	# 4 @ 24 " o.c.	6'-0"
		# 4 @ 12 " o.c.		7'-0"
		# 4 @ 9 " o.c.		9'-6"
9	6	# 4 @ 24 " o.c.	# 4 @ 24 " o.c.	3'-6"
		# 4 @ 18 " o.c.		5'-0"
		# 4 @ 12 " o.c.		6'-0"
	8	# 4 @ 18 " o.c.	# 4 @ 24 " o.c.	5'-6"
		# 4 @ 12 " o.c.		6'-6"
		# 4 @ 9 " o.c.		9'-0"

Notes:

1. Chart is based on an active soil pressure of 65 pounds per cubic foot (pcf).
2. Reinforcing steel shall be ASTM A615 with a yield stress, F_y , of 60,000 pounds per square inch (psi).
3. Vertical reinforcing bars shall be placed between 1-1/2 and 2-1/2 inches from the inside face of the
4. Minimum concrete strength, f'_c , shall be 3,000 pounds per square inch (psi).
5. Maximum height of soil against foundation walls is 6 inches below top of wall.
6. Refer to Figure 3 for basement wall detail.
7. Refer to Figure 4A for reinforcing at wall corners.
8. Refer to Figure 4B for reinforcing at openings in walls.
9. Minimum length of perpendicular wall shall be 2 feet. Perpendicular wall shall be the same thickness and reinforcing as wall it supports, and may be up to 1'-0" less in height than foundation wall. Perpendicular walls must be placed on minimum 1'-8" strip footing placed integral with foundation wall footing.



OR

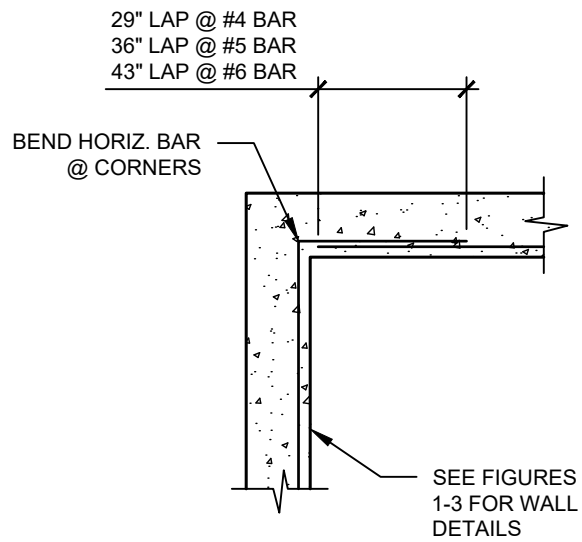


FIGURE 4A: TYP. CONC. WALL CORNER

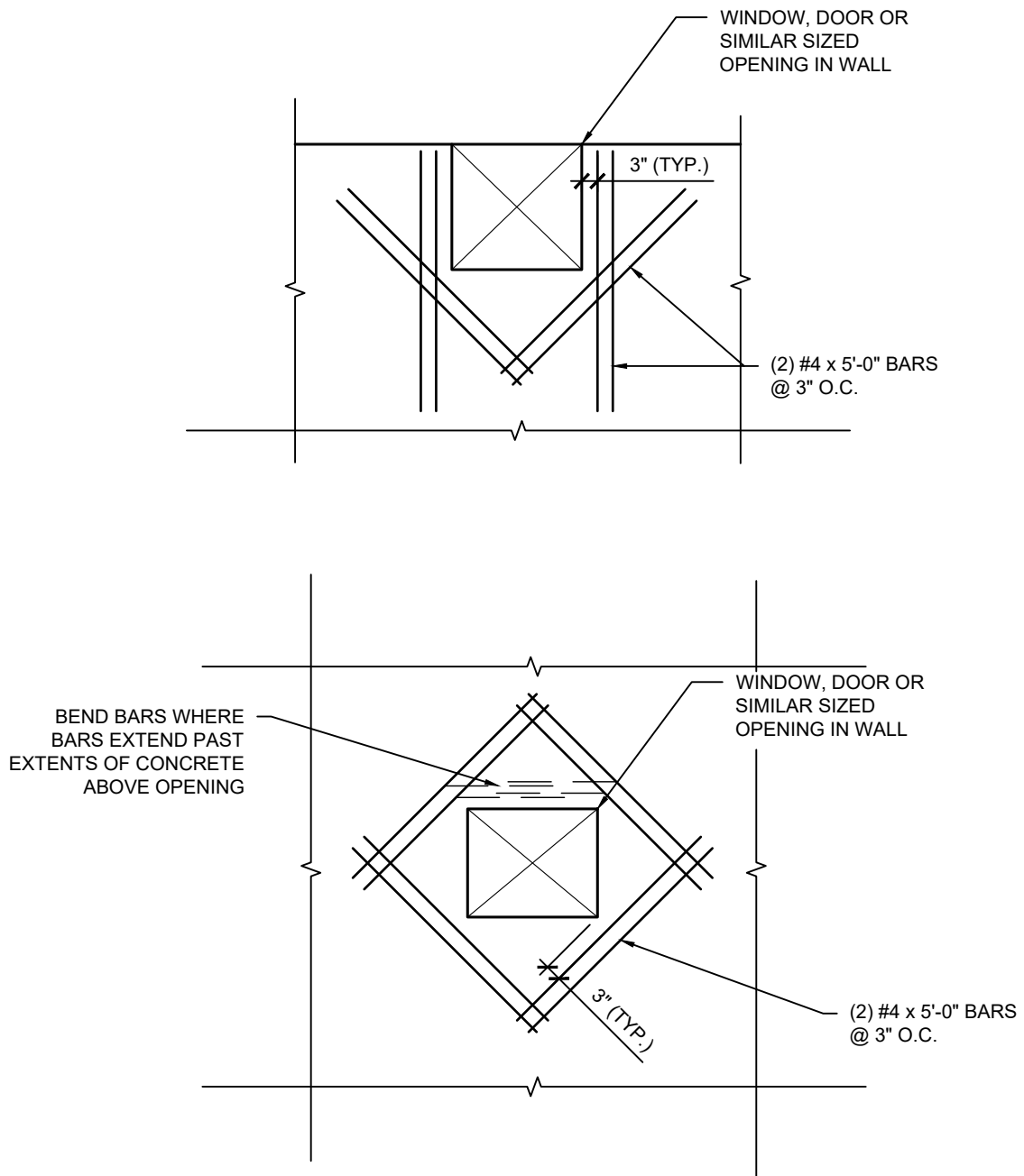


FIGURE 4B: REINFORCING @ WALL OPENINGS

