FLOODPROOF CONSTRUCTION REQUIREMENTS

For lots in the Special Flood Hazard Area (100-yr floodplain)
or
lots with an approved FEMA Letter of Map Revision Based on Fill

ENGINEERING DEPARTMENT
(218)299-5390

May 6, 2013

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Section 1

Floodproof Construction Requirements Checklist
FEMA Special Flood Hazard Areas (100-year Floodplain)

Step 1: Check the City of Moorhead website for lot information to determine if floodproof construction requirements are applicable.

For new construction, if the lot is in the 100-year floodplain and included on the list at the website below, proceed to Step 2. If the lot is not listed, a Conditional Use Permit (CUP) may be required. Contact the City Planning & Zoning Director for assistance.

http://www.cityofmoorhead.com/the_city/floodplain/permits.asp

For existing built lots, the mapping tools at the website below can be used to determine if the lot is in the 100-year floodplain. City Engineering staff is available to assist in determining the applicable requirements.

http://www.cityofmoorhead.com/the_city/floodplain/maps.asp

- Permitted Use ☐
- Provisional Use (LOMR-F) ☐
- Conditional Use ☐

All construction in the 100-year floodplain requires a Floodplain Development Permit.

Step 2: Floodproof construction requirements package and required elevations forms are attached to this document.

- Floodplain Development Permit Application ☐
- City Form A (completed by City, signed by applicant) ☐
- Floodproof construction details ☐

Step 3: Plans must be developed and signed by a professional engineer or architect licensed in the State of Minnesota.

Construction plans for basements in the floodplain must not show sleeping rooms or a kitchen. Basements can be designed for bathrooms, closets, halls, storage rooms, laundry or utility space.

When submitting the plans to the City for issuance of a Floodplain Development Permit, verify the following:

- Floodproof construction details are clearly shown ☐
- Critical elevations are clearly shown ☐
- Floodplain Development Permit Application is completed ☐
- Plans signed by an engineer or architect (for the floodproofing portions of the plans) ☐

Step 4: Submit plans to the City.

1 set of plans submitted to the Engineering Department	☐
1 set of plans submitted to Building Codes	☐

Step 5: The City will issue a Floodplain Development Permit (Engineering Department), Provisional Use Permit for LOMR-F lots (Community Services Department), and a Building Permit (Building Codes). Post the Floodplain Development Permit on-site with the Building Permit.

Step 6: Call the Engineering Department to request construction elevation stakes. Two stakes will be set. A 24-hour notice is required for scheduling.

Step 7: Proceed to construction. Inspections listed below must be performed. ***All floodproofing inspections in the Engineer/Architect column must be completed by the builder's engineer or architect and certified on a signed inspection report. Failure to certify these inspections will void the floodproof certification.***

	Engineering Department	Building Codes	Engineer/ Architect
Elevation check on footings before concrete is placed (call the Engineering Dept at 299-5390 24-hours in advance for scheduling)	☐		
Footings		☐	☐
Foundation/rebar			☐
Waterproofing			☐
Drain tile			☐
Concrete floor/poly			☐
Sanitary sewer valve		☐	
Sanitary sewer line		☐	
Joist blocking		☐	
Finish grading (LAG)			☐

Step 8: Complete the following documents for a post-construction submittal to the City.

Signed inspection report (completed by engineer or architect)	☐
Property Flood Survey	☐
FEMA Elevation Certificate	☐
Signed City Form B	☐
FEMA Residential Basement Floodproofing Certificate	☐

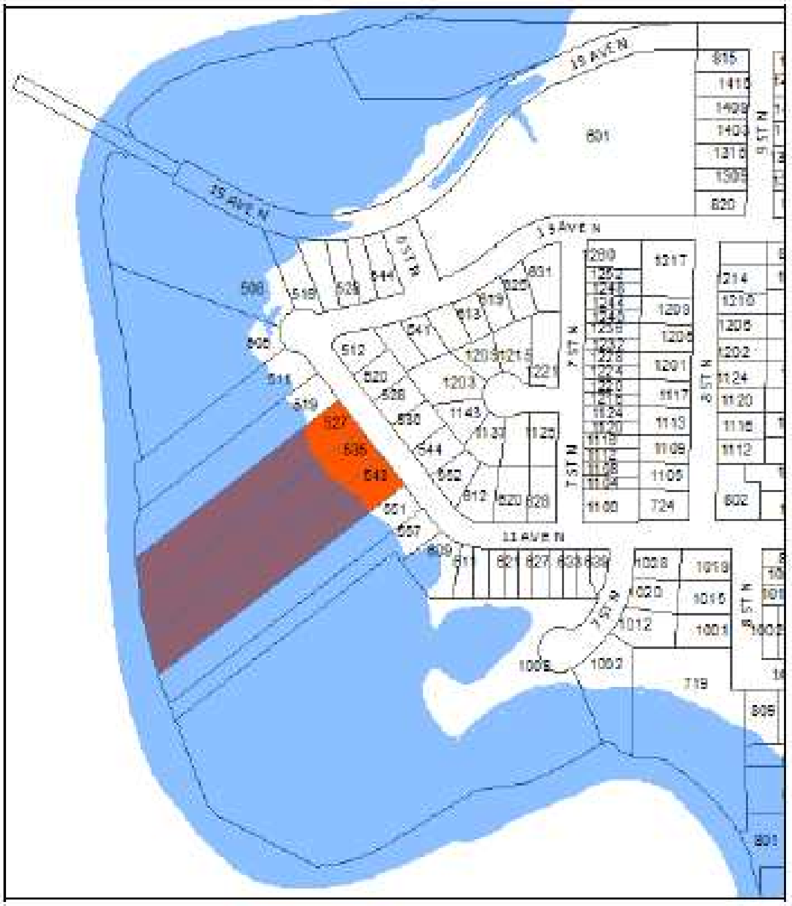
Step 9: Upon submission and verification of the documents in Step 8, Building Codes will issue a Certificate of Occupancy.

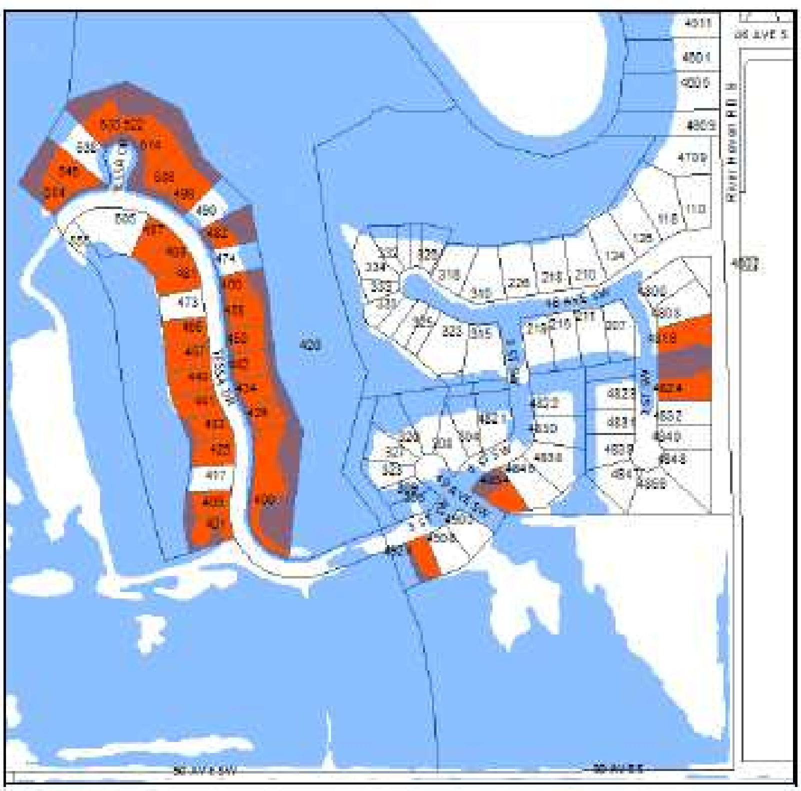
Section 2

Below are the thirty-six (36) buildable vacant properties in the City of Moorhead that are touched by the FEMA 100 Year Floodplain that will require a Floodplain Development Permit and Floodproof Basement Certificate. (* This List is current as of December 2012)

Parcel-ID	Land Address	Addition \ Subdivision	Block	Lot	BFE	FDL
587910240	4916 3RD ST SW	TESSA TERRACE 2ND ADD	3	3	905.2	907.2
587920160	401 TESSA DR	TESSA TERRACE 3RD ADD	1	16	905.3	907.3
587920150	409 TESSA DR	TESSA TERRACE 3RD ADD	1	15	905.3	907.3
587910140	4854 3RD ST SW	TESSA TERRACE 2ND ADD	1	14	905.3	907.3
587920130	425 TESSA DR	TESSA TERRACE 3RD ADD	1	13	905.3	907.3
587920340	400 TESSA DR	TESSA TERRACE 3RD ADD	2	18	905.3	907.3
587920120	433 TESSA DR	TESSA TERRACE 3RD ADD	1	12	905.3	907.3
587920330	426 TESSA DR	TESSA TERRACE 3RD ADD	2	17	905.3	907.3
587920110	441 TESSA DR	TESSA TERRACE 3RD ADD	1	11	905.3	907.3
587920320	434 TESSA DR	TESSA TERRACE 3RD ADD	2	16	905.3	907.3
587920100	449 TESSA DR	TESSA TERRACE 3RD ADD	1	10	905.3	907.3
587910010	4824 2ND ST SW	TESSA TERRACE 2ND ADD	1	1	905.3	907.3
587920310	442 TESSA DR	TESSA TERRACE 3RD ADD	2	15	905.2	907.2
587920090	457 TESSA DR	TESSA TERRACE 3RD ADD	1	9	905.2	907.2
587920300	450 TESSA DR	TESSA TERRACE 3RD ADD	2	14	905.2	907.2
587920080	465 TESSA DR	TESSA TERRACE 3RD ADD	1	8	905.2	907.2
587900210	4816 2ND ST SW	REPLAT TESSA TERRACE 1ST ADD	2	4	905.2	907.2
587920290	458 TESSA DR	TESSA TERRACE 3RD ADD	2	13	905.2	907.2
587920280	466 TESSA DR	TESSA TERRACE 3RD ADD	2	12	905.2	907.2
587920060	481 TESSA DR	TESSA TERRACE 3RD ADD	1	6	905.2	907.2
587920050	489 TESSA DR	TESSA TERRACE 3RD ADD	1	5	905.2	907.2
587920040	497 TESSA DR	TESSA TERRACE 3RD ADD	1	4	905.2	907.2
587920260	482 TESSA DR	TESSA TERRACE 3RD ADD	2	10	905.2	907.2
587890010	554 TESSA DR	TESSA COURT ADD	1	1	905.2	907.2
587920240	498 TESSA DR	TESSA TERRACE 3RD ADD	2	8	905.2	907.2
587890020	546 TESSA DR	TESSA COURT ADD	1	2	905.2	907.2
587890070	506 TESSA DR	TESSA COURT ADD	1	7	905.2	907.2
587890060	514 TESSA DR	TESSA COURT ADD	1	6	905.2	907.2
587890040	530 TESSA DR	TESSA COURT ADD	1	4	905.2	907.2
587890050	522 TESSA DR	TESSA COURT ADD	1	5	905.2	907.2
580030010	304 43RD AVE S	ALLYSON PKWY 1ST ADD	1	1	904.6	906.6
584290080	3737 10TH ST S	MALLARD CREEK 4TH ADD	1	8	904.0	906.0
580930130	543 11TH AVE N	BRIDGEVIEW POINTE 2ND ADD	2	5	899.1	901.1
580930120	535 11TH AVE N	BRIDGEVIEW POINTE 2ND ADD	2	4	899.1	901.1
580930110	527 11TH AVE N	BRIDGEVIEW POINTE 2ND ADD	2	3	899.1	901.1
586570070	3510 RIVERVIEW CIR S	RIVERVIEW ESTATES 2ND ADD	1	7	904.0	906.0

Maps for relevant properties located in Bridgeview Pointe, Tessa Court, and Tessa Terrace Additions:





Section 3

Application No.

FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

SECTION 1: GENERAL PROVISIONS:

1. Applicant must either be the owner of the property or have written authorization from the owner(s).
2. Applicant must complete Sections 1 & 2. The Engineering Department will complete sections 3 & 4.
3. Applicant must provide additional information in Section 4 prior to permit issuance.
4. For floodproofed structures applicant must submit two complete plan sets (1 for Engineering and 1 for Building Codes).
5. **No work of any kind may start until a permit is issued.**
6. False statements made in this application may result in permit revocation.
7. If the permit is revoked, all work must cease.
8. Development or structures shall not be used or occupied until a Certificate of Compliance is issued.
9. The permit will expire if no work is commenced within six months of permit issuance.
10. Other permits may be required to fulfill local, state, and federal regulatory requirements.
11. Applicant gives consent to the City Engineer or his/her representatives to make reasonable inspections required to verify compliance.
12. APPLICANT CERTIFICATION: I HEREBY CERTIFY THAT ALL DATA ON THE APPLICATION FORMS, PLANS AND SPECIFICATIONS ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

APPLICANT (printed): _____

APPLICANT SIGNATURE: _____ DATE: _____

SECTION 2: PROPOSED DEVELOPMENT (to be completed by applicant):

NAME **ADDRESS** **TELEPHONE**

_____

APPLICANT

_____

CONTRACTOR

_____

ENGINEER AND/OR ARCHITECT, IF APPLICABLE

PROJECT ADDRESS:_____ PARCEL NO.:_____

LEGAL DESCRIPTION:_____

To avoid delay in processing the application, please provide a map attached to this application showing the project location.

DESCRIPTION OF WORK (check all applicable boxes):

A. STRUCTURAL DEVELOPMENT

ACTIVITY
- ❑ New Structure
- ❑ Addition
- ❑ Alteration
- ❑ Repair/Maintenance
- ❑ Relocation
- ❑ Demolition
- ❑ Replacement

STRUCTURE TYPE
- ❑ Residential (❑ 1-4 family or ❑ more than 4 family)
- ❑ Non-residential, commercial, office, etc. (Floodproofed? ❑ Yes)
- ❑ Warehouse
- ❑ Combined Use (Residential & Commercial)
- ❑ Manufactured (Mobile) Home (In mobile home park? ❑ Yes)
- ❑ Shed/Storage
- ❑ Deck
- ❑ Porch/3-Season Porch
- ❑ Garage
- ❑ Fence
- ❑ Other: _____

Estimated Project Cost: $_____

B. OTHER DEVELOPMENT ACTIVITIES

❑ Clearing ❑ Grading ❑ Fill ❑ Drilling
❑ Excavation (other than structural development checked above)
❑ Subdivision (new or expansion)
❑ Drainage Improvements (including culvert work)
❑ Road, Street or Bridge Construction
❑ Private Well or Septic/Drain Field
❑ Watercourse Alteration (including dredging & channeling modifications)
❑ Other (please specify) _____

After completing Section 2, Applicant must submit form to the City Engineer for review.

SECTION 3: FLOOPLAIN DETERMINATION (To be completed by the City Engineer)

The proposed development is located on FIRM Panel Number/Suffix. _____, Effective Date _____. A copy of the relevant area on the FIRM is attached.

The proposed development:
❑ Is NOT located in the SFHA. (NO FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED).
❑ Is located in the SFHA as shown on the effective FIRM, but has been removed by a:
❑ Letter of Map Revision Based on Fill (LOMR-F) FEMA Case No. _____
❑ Letter of Map Amendment (LOMA) FEMA Case No. _____
❑ Is located in the SFHA as shown on the effective FIRM, and must be removed by a:
❑ Letter of Map Revision Based on Fill (LOMR-F) FEMA Case No. _____
❑ Is partially located in the SFHA, but the building/development is not within the SFHA.
❑ Is located in the SFHA
FIRM Zone(s): _____ BFE: _____ ft. Datum: NAVD 88 or NGVD 29
❑ Is located in the floodway.
❑ See section 4 for additional information required for permit issuance.

SIGNED: _____ DATE: _____
TITLE: _____

SECTION 4: Additional Information Required (to be completed by City Engineer)
The applicant must submit the documents checked below before a permit can be issued:
❑ Subdivision or other development plans (including future development master plan).
❑ A site plan showing the location of all existing structures, water bodies, adjacent roads, lot dimensions, easements, proposed grading/fill, and proposed development/buildings to the extent known.
❑ Supplemental Data for Grading/Building Permit in SFHA (Form A).
❑ Building plans (drawn to scale) (2 sets required if floodproofed) and specifications, including where applicable:
❑ floodproofing details per City floodproof construction requirements
❑ proposed elevation of the first floor
❑ proposed elevation of lowest floor (including basement)
❑ proposed lowest adjacent grade to the structure
❑ proposed fill elevation 15 ft. from the structure
❑ types of water-resistant materials used below the first floor
❑ details for floodproofing of utilities located below the first floor
❑ details of enclosures below the first floor.
❑ details for anchoring structures
❑ Plans showing the extent of watercourse relocation and/or landform alterations, if applicable.
❑ LOMR-F and Community Acknowledgement Form upon completion of construction.
❑ "No-Rise" Certification (Form B). Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in an increase in the BFE. A copy of all data and hydraulic/hydrologic calculations supporting this finding must be submitted.
❑ Change in BFE (ft.) _____ ❑ Meets ordinance limits on elevation increases (0.75 ft.).
❑ Other: A geotechnical review is recommended for slope stability issues. No fill or construction may be placed in the floodway without a conditional use permit.

Application No.

New Home
Construction

FLOODPLAIN DEVELOPMENT PERMIT

ISSUED TO: _____

ADDRESS: _____

PROJECT ADDRESS: _____
(if different from permitee's address)

PARCEL NUMBER: _____

ISSUED BY: _____

TITLE: _____

DATE: _____
(This permit expires 180 days from this date)

- **THIS PERMIT MUST BE POSTED ON THE PREMISIES IN A CONSPICUOUS PLACE SO AS TO BE CLEARLY VISIBLE FROM THE STREET.**
- **PERMITTEE MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AND PERMITS.**
- **PERMITTEE MUST CONSTRUCT THE IMPROVEMENT IN ACCORDANCE WITH THE FLOODPLAIN DEVELOPMENT PERMIT APPLICATION AND RELATED PLANS AND SPECIFICATIONS.**

SPECIAL CONDITIONS:

April 12, 2012

SUPPLEMENTAL DATA FOR GRADING/BUILDING PERMIT IN SFHA (FORM A)

Parcel #	Application #

A. General Information

Applicant's Name (Last, First, M.I.):

Address:	Project Location:
Phone:	Email:

B. Project Information

Floodplain District
- ❑ Floodway
- ❑ Flood Fringe

Type of Project
- ❑ New Structure
- ❑ Addition
- ❑ Alteration
- ❑ Repair/Maintenance
- ❑ Relocation
- ❑ Demolition
- ❑ Replacement

Zoning Determination
- ❑ Permitted Use

- ❑ CUP
- ❑ Provisional Use (LOMR-F)

Hearing date: _____
DNR Notified: _____

Type of Structure
- ❑ Residential (❑ 1-4 family or ❑ more than 4)
- ❑ Non-residential, commercial, office, etc. (Floodproofed? ❑ Yes)
- ❑ Warehouse
- ❑ Combined Use (Residential & Commercial)
- ❑ Manufactured (Mobile) Home (In mobile home park? ❑ Yes)
- ❑ Shed/Storage
- ❑ Deck
- ❑ Porch/3-Season Porch
- ❑ Garage
- ❑ Fence
- ❑ Other: _____

Floodproofing Design Level (FDL) (to the nearest one-tenth foot):

A. Base Flood Elevation (BFE)* = _____ft.
B. Freeboard required by ordinance = 2.0 ft.

FDL (A + B) = _____ ft.

*Datum: ❑ NGVD 1929 ❑ NAVD 1988
**From effective Flood Insurance Study (FIS)

B. Construction Information

Structure Elevation Requirements	Proposed	Required
a. Top of bottom flooring (including basement or crawl space)		>BFE – 5 ft. =
b. Top of next higher floor		> FDL =
c. Attached garage (top of slab)		> FDL =
d. Lowest elevation of machinery or equipment servicing the building (describe equipment _____)		> BFE – 5 ft. =
e. Lowest adjacent (finished) grade (LAG)		BFE + 1.5 =
f. Lowest compacted fill elevation at 15 ft. from building		> BFE + 0.75 =

Project Cost Factors for additions, improvements or repairs/maintenance (for nonconforming structures)

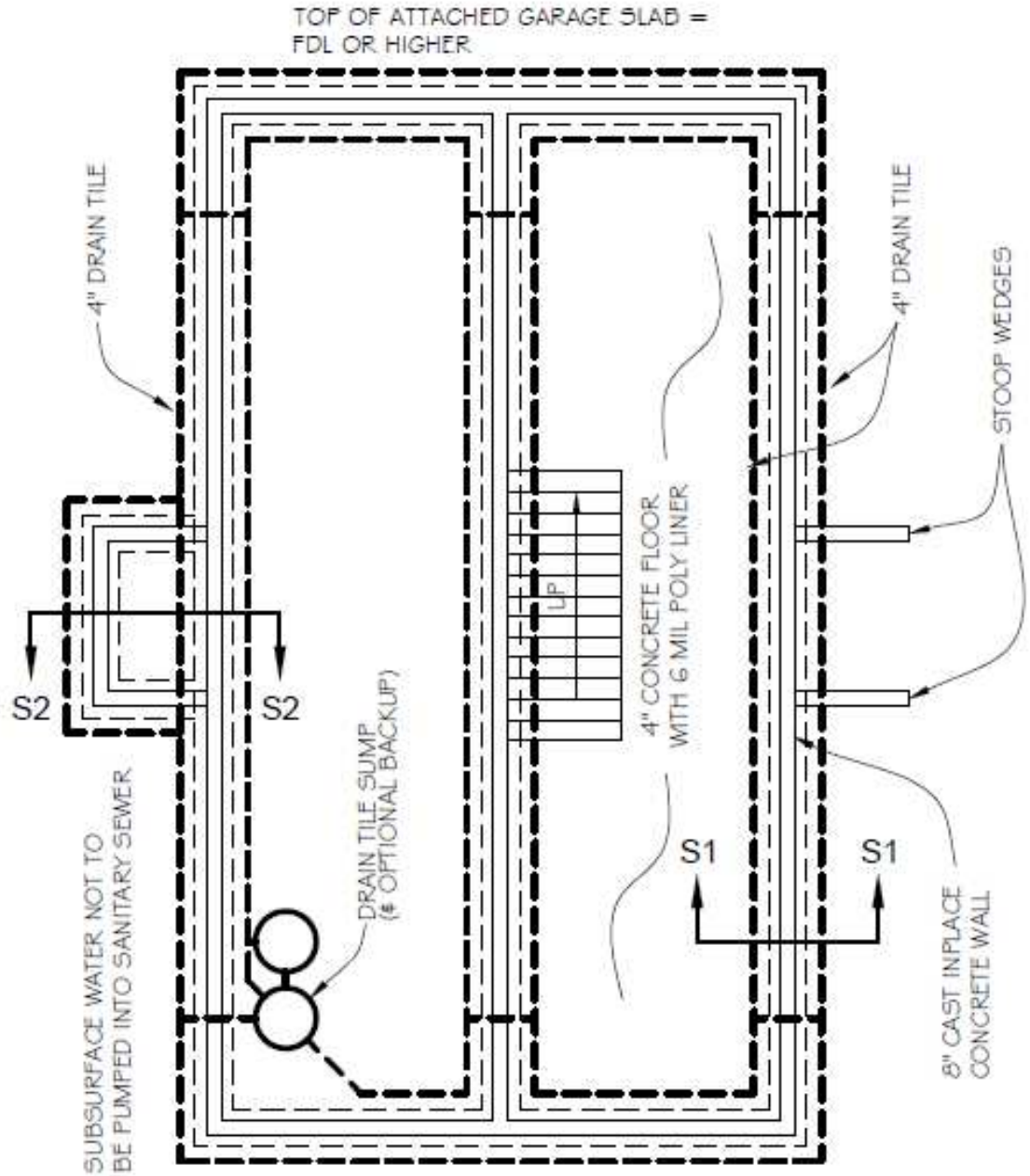
a. Cost of improvements (including cost of labor and all supplies)	$
b. Cost of repairs/maintenance (including cost of labor and all supplies)	$
c. Cost of previous improvements (in current $) after date of first Flood Insurance Rate Map (FIRM)	$
d. Total cost of improvements plus current repairs/maintenance (a + b + c)	$
e. Estimated market value of existing structure (not including land value) without any improvements done after the date of the first FIRM:	$
f. Percentage cost of improvements (c ÷ e), (must be < 50% for approval).	%

All floodproof construction inspections must be completed. At the conclusion of construction, a City As-Built Elevation Certificate (Form B), Property Flood Survey (asblt), inspection certification form and a FEMA elevation certificate must be completed.

I hereby certify that all data on the application forms, plans and specifications are true and correct to the best of my knowledge.

_____ _____
Signature of Applicant **Date**

Section 4

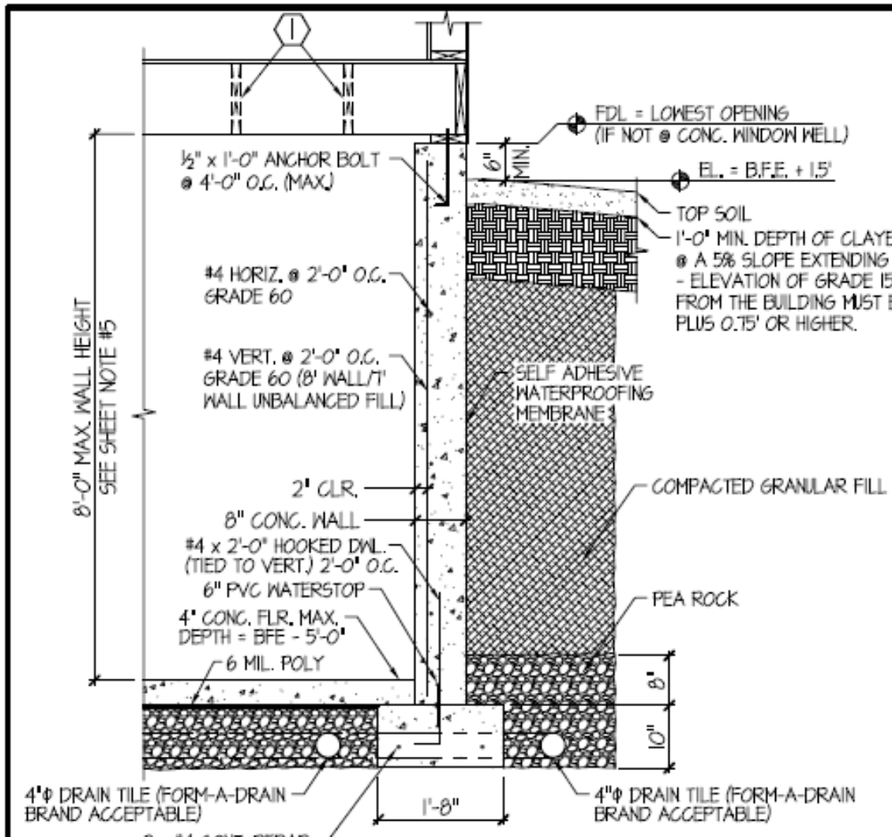


CONTRACTOR SHALL BE RESPONSIBLE TO CALL FOR ALL REQUIRED INSPECTIONS.

FOOTING & FOUNDATION WALL PLAN

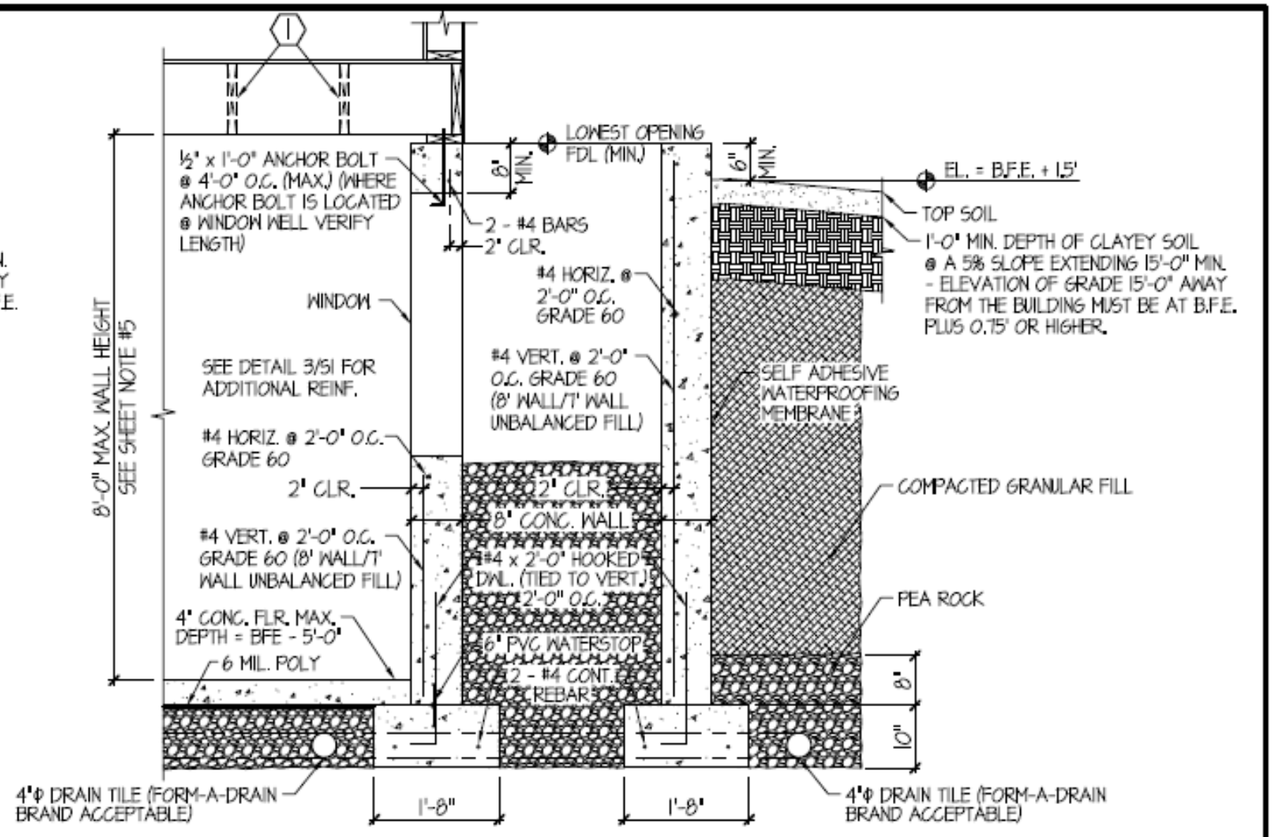
SCALE: $\frac{1}{8}$" = 1'-0"

April 12, 2012 City of Moorhead Engineering Department



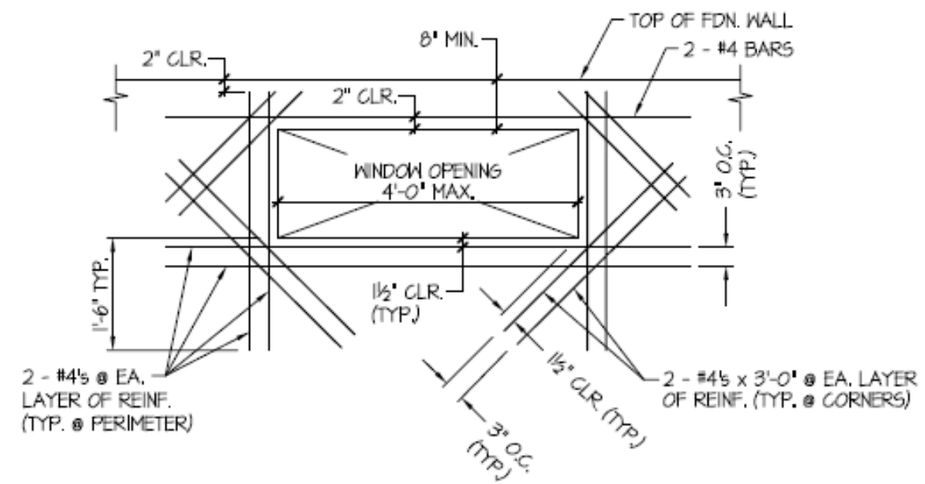
1/S1 TYP. BASEMENT WALL SECTION

½" = 1'-0"



2/S1 TYP. BASEMENT WALL SECTION @ WINDOW WELL

½" = 1'-0"



3/S1 ADDITIONAL REINF. @ OPENING

½" = 1'-0"

SHEET NOTES:

1. BASEMENT FLOOR MUST NOT BE LOWER THAN 5'-0" BELOW BFE (100 YEAR).
2. MAIN FLOOR MUST BE ABOVE FDL.
3. CONTRACTOR SHALL BE RESPONSIBLE TO CALL FOR ALL REQUIRED INSPECTIONS.
4. FLOODPROOFING DESIGN LEVEL (FDL) SHALL BE BFE PLUS 2'-0".
5. CONTACT STRUCTURAL ENGINEER IF WALL IS TO BE CONSTRUCTED GREATER THAN 8'-0" IN HEIGHT.

- CONSTRUCTION DESIGN MUST MEET OTHER REQUIREMENTS AND SPECIAL CONSIDERATIONS THAT ANY CONSTRUCTION SITE MAY PRESENT.
- 8" POURED CONCRETE WALL MIN. COMPRESIVE STRENGTH 3000 PSI

KEY NOTES:

(1) AT FOUNDATION WALL LOCATION WHERE JOISTS/TRUSSES ARE PARALLEL TO WALL, INSTALL TWO ROWS OF BLOCKING @ SAME SPACING & SIZE OF FRAMING JOIST/TRUSS.

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.

JIM HEYER

Date: 4-11-2012 Reg. No. 16374

HEYER ENGINEERING, PC
STRUCTURAL CONSULTANT
1020 36th Street SW, Fargo, ND 58103
(P) 701.280.0949 (F) 701.280.9686

Project FLOOD PROOF BASEMENT WALL ANALYSIS
CITY OF MOORHEAD ENGINEERING DEPARTMENT
Re BASEMENT WALL DETAILS

Sheet No. S1
Job No. 006.0021.2010
Date 4-11-2012
By RJH/HRL

Section 5

MOORHEAD
MINNESOTA

ENGINEERING DEPARTMENT
500 CENTER AVENUE
MOORHEAD, MN 56560
(218) 299-5390

BUILDING CODES
500 CENTER AVENUE
MOORHEAD, MN 56560
(218) 299-5424

FLOODPROOFING INSPECTION REPORT

Permit Applicant: _____ Phone Number: _____

Property Address: _____ Parcel Number: _____

INSPECTIONS

Inspection Type	Inspection Date	Inspected By	Comments
Footing			**Requires 24-hour notice: Call Engineering (elevation verification) & Building Codes (separate inspections required).**
Foundation & rebar			Constructed per the plan set details
Waterproofing			Constructed per the plan set details
Drain Tile			Interior and exterior installation with cross-connect locations
Concrete Floor & Poly			Constructed per the plan set details
Finish Grading (LAG)			Survey detailing finish elevations at structure corners and 15 feet in each direction (see property flood survey form)

Note: Building Codes must complete inspections of footings, sewer line, sewer valve, and joist blocking in addition to other routine construction inspections.

CERTIFICATION

I certify that the above-referenced inspections have been completed by me or under my direct supervision and the construction activities were verified to meet federal, state and local requirements.

Print Name	**Signature**	**MN License # (Engineer/Architect)**	**Date**

Section 6

Instructions for Completing City of Moorhead Property Flood Survey

1. **Parcel #** – The assigned tax parcel identification number for the property.
2. **Applicant Name** – Legal property owner of record for the property.
3. **Address** – Legal land\site address assigned to the property.
4. **Subdivision\Legal Description –** Subdivision\Addition\Legal Description for the property.
5. **Longitude & Latitude –** Coordinate pairs in Lat-Lon (WGS 84, NAD83 Horizontal) Decimal Degrees to four (4) decimal places.
6. This property IS in the Special Flood Hazard Area (SFHA) as shown on the Flood Insurance Rate Map (FIRM) [Circle **YES** if the Property IS in the SFHA OR **NO** if the Property IS NOT in the SFHA. Panel and Map number information is already completed. Date is the Effective Date recorded on the FIRM Map.
   City Engineer's determination based on elevation information of the site:
   Criteria used for determination:
   For existing homes: If **100 Year Base Flood Elevation (BFE)** is above any of the elevations recorded for the following:
   - No. 16 Walkout Basement
   - No. 17 Main Floor
   - No. 18 Garage Floor
   - No. 20 Lowest Opening
   - No. 23 Lowest Adjacent Grade

   then the property **IS** in the SFHA.

   For new construction: If **ALL** of the following are satisfied:
   - No. 17 Main Floor, No. 18 Garage Floor, and No. 20 Lowest Opening must be at or above **FDL (Floodproofing Design Level)**
   - No. 14 Basement Floor must be above BFE minus five (5) feet
   - No. 23 Lowest Adjacent Grade must be at or above BFE plus 1.5 feet.
   - No. 25 Ground 15' from Building must be at or above BFE plus 0.75 feet.

   then the property **IS NOT** in the SFHA.

7. **Flood Zone(s)** – Provide the flood zone(s) in which the principle structure is located per the FIRM.
8. **LOMA/LOMR-F Submitted** – Enter the date a Letter of Map Amendment or Letter of Map Revision Based on Fill was submitted to FEMA.
9. **LOMA/LOMR-F Received** – Enter the date a FEMA Determination Letter is received regarding the submitted Letter of Map Amendment or Letter of Map Revision Based on Fill and indicate whether it was approved or denied. Include the Case Number.
10. **Benchmark** – Provide benchmark location and elevation used for surveying in NAVD88. Use the official MnDOT Benchmark Name.
11. **100 Year Base Flood Elevation (BFE)** – Using the appropriate Flood Insurance Study (FIS) Profile, Floodway Data Table, or FIRM Panel, locate the property and enter the Base Flood Elevation (BFE).
12. **Floodproofing Design Level (FDL)** – The minimum elevation of the lowest opening to which all new floodplain development must be protected. (BFE + two (2) feet)
13. **Flood Proof Basement Y/N** – This pertains to new construction on a lot within the flood fringe. City Ordinance requires flood proof basement construction for any new construction within the flood fringe.

14. **Basement Floor** – Elevation at the lowest floor (basement). *(For Pre-FIRM Structures, elevation taken for flood protection purpose only and will not be used in City Engineer's determination of whether Structure is or is not in SFHA.)*
15. **Basement Square Feet –** The square footage of the basement of the structure.
16. **Walkout Basement Y/N** – Does the structure have a walkout basement? If yes, record the elevation.
17. **Main Floor** – Elevation at the main floor of the principle structure.
18. **Garage Floor** – Elevation at the garage floor (attached and/or detached).
19. **Garage Square Feet –** The square footage of the garage.
20. **Lowest Opening** – Determine the elevation of the lowest opening into the structure. If poured concrete window well use the top elevation, if not a poured concrete window well use the elevation of the bottom.
21. **FIS River Cross Sections –** Indicate FEMA's downstream and upstream FIS River Cross-Sections for the property.
22. **Low Ground on Lot** – On the map, record elevations taken around the lot. Enter on certificate, the lowest elevation of the property. *(Elevation taken for flood protection purpose only and will not be used in City Engineer's determination of whether Structure is or is not in SFHA.)*
23. **Lowest Adjacent Grade (LAG)** – On the map, record elevations taken around the building. Enter on certificate, the elevation of finished lowest adjacent grade (ground, sidewalk, patio slab, support of attached deck, or bottom of window well) next to the building. Note: For window wells see #20.
24. **Highest Adjacent Grade (HAG)** – On the map, record elevations taken around the building. Enter on certificate, the elevation of finished highest adjacent grade (ground, sidewalk, patio slab, deck support or bottom of window well) next to the building.
25. **Ground 15' from Building** – On the map, record elevations taken 15' around the building. Enter on certificate, the lowest ground elevation. *(For Pre-FIRM Structures, elevation taken for flood protection purpose only and is **not used** in City Engineer's determination of whether Structure is or is not in SFHA.)*
26. **Top of Dike (Private Y/N)** – On the map, record elevations along the top of dike, indicate whether the dike is private. Enter on certificate, the lowest elevation on the top of dike. *(Elevation taken for flood protection purpose only and **will not be used** in City Engineer's determination of whether Structure is or is not in SFHA.)*
27 **Year of Construction** – Date the home was constructed.
28. **Type of Structure** – Enter the type of structure from: Rambler, Two story, Bi-level, Split-level, Twin home, Condo, Slab on grade, Full basement, Other.
29. **Deck (Attached Y/N) –** Enter the elevation of the point of contact with the ground of the lowest deck support. Indicate (Y/N) whether the deck is attached to the house. If a deck is attached, the lowest support structure elevation may be the LAG for the entire structure (home).
30. **Building Diagram Number –** The Building Diagram Number that best describes the structure from the Instructions (Pages 7 & 8) for FEMA's National Flood Insurance Program Elevation Certificate.
31. **Digital Photos Front/Rear/Side and Date –** Indicate whether digital photographs were taken of the structure and the date photographs were taken.
32. **Basement Equipment** – Check all equipment and/or machinery (not appliances) located in the basement or lowest floor and list any additional if necessary.
33. **Survey Date** – The day / month / year that the survey was conducted.
34. **Property Flood Survey Number** – To be assigned by the City of Moorhead Engineering Department.
35. **Signature \ Title \ Date** –

City of Moorhead (Clay County, MN) PROPERTY FLOOD SURVEY

1.) Parcel-ID: 583520010
2.) Applicant Name: John Q Public
5.) Longitude: -96.7731
3.) Property Address: 3407 RIVERSHORE DR S
4.) Subdivision/Legal Desc: JANES ADDITION
5.) Latitude: 46.8398

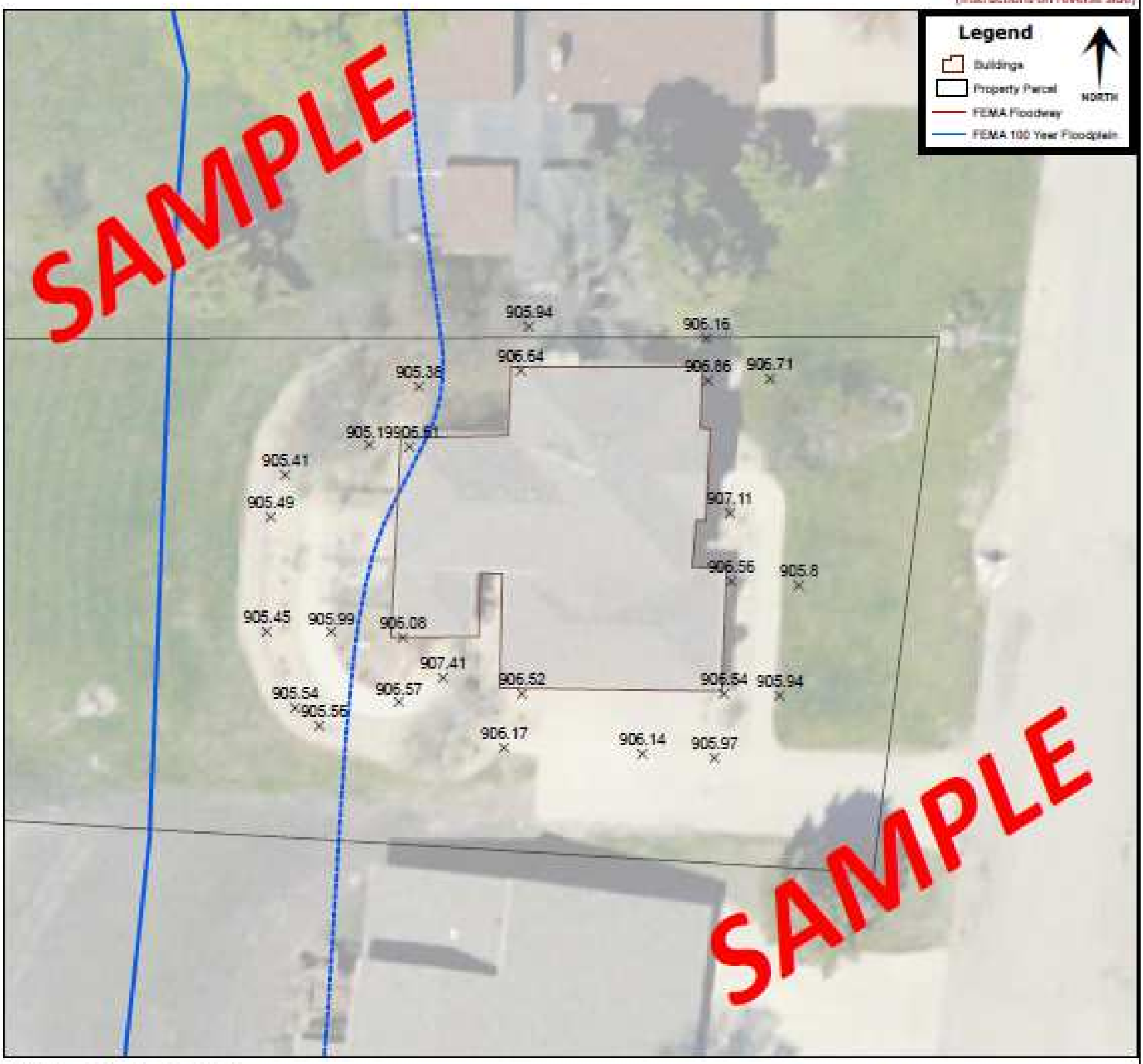
6.) This property IS in the Special Flood Hazard Area (SFHA) as shown on the Flood Insurance Rate Map (FIRM) YES / NO For: Moorhead, Minnesota - 275244 and Clay County, Minnesota - 27027C Panel Number: 27027 0459 Map Number: 0459E Dated: 4 / 17 / 2012

7.) Flood Zone(s) AE 8.) LOMA/LOMR Submitted _____ 9.) LOMA/LOMR Received _____ (APPROVED) (DENIED) CASE # _____

Elevations (NAVD88): 10.) Benchmark Used 17844

11.) 100 Year Base Flood Elevation (BFE)	905	22.) Low Ground on Lot		32.) Basement Equipment:	
12.) Floodproofing Design Level (FDL)	907	23.) Lowest Adjacent Grade (LAG)	906.08	X	Furnace
13.) Flood Proof Basement		24.) Highest Adjacent Grade (HAG)	907.11	X	Water Heater
14.) Basement Floor	900.1	25.) Ground 15' from Building		X	Sump Pump
15.) Basement Square Feet	1663	26.) Top of Private Dike			Elevator
16.) Walkout Basement NO		27.) Year of Construction	1988		Other:
17.) Main Floor	908.3	28.) Type of Structure	Rambler		
18.) Garage Floor (Attached garage? YES)	906.52	29.) Deck (Attached NA)			
19.) Garage Square Feet	798	30.) Building Diagram Number	2		
20.) Lowest Opening	901.4	31.) Digital Photos Front/Rear/Side?		Date:	20110407
21.) FIS River Cross-Sections	AQ	33.) Survey Date:	20110407		

(Instructions on reverse side)



Scale: 1 inch = 20 feet

34.) Property Flood Survey Number: _____

35.) Signature: _____ Title: _____ Date: ____/____/_____

Section 7

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
National Flood Insurance Program

ELEVATION CERTIFICATE

IMPORTANT: Follow the instructions on pages 1–9.

OMB No. 1660-0008
Expiration Date: July 31, 2015

SECTION A – PROPERTY INFORMATION

FOR INSURANCE COMPANY USE

Policy Number:

Company NAIC Number:

A1. Building Owner's Name

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.

City State ZIP Code

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) _____

A5. Latitude/Longitude: Lat. _____ Long. _____ Horizontal Datum: ☐ NAD 1927 ☐ NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number _____

A8. For a building with a crawlspace or enclosure(s):
- a) Square footage of crawlspace or enclosure(s) _____ sq ft
- b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade _____
- c) Total net area of flood openings in A8.b _____ sq in
- d) Engineered flood openings? ☐ Yes ☐ No

A9. For a building with an attached garage:
- a) Square footage of attached garage _____ sq ft
- b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade _____
- c) Total net area of flood openings in A9.b _____ sq in
- d) Engineered flood openings? ☐ Yes ☐ No

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number			B2. County Name		B3. State
B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Panel Effective/ Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use base flood depth)

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:
☐ FIS Profile ☐ FIRM ☐ Community Determined ☐ Other/Source: _____

B11. Indicate elevation datum used for BFE in Item B9: ☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? ☐ Yes ☐ No
Designation Date: _____ / _____ / _____ ☐ CBRS ☐ OPA

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☐ Construction Drawings* ☐ Building Under Construction* ☐ Finished Construction
*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: _____ Vertical Datum: _____

Indicate elevation datum used for the elevations in items a) through h) below. ☐ NGVD 1929 ☐ NAVD 1988 ☐ Other/Source: _____
Datum used for building elevations must be the same as that used for the BFE.

		Check the measurement used.
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	_____ . _____	☐ feet ☐ meters
b) Top of the next higher floor	_____ . _____	☐ feet ☐ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	_____ . _____	☐ feet ☐ meters
d) Attached garage (top of slab)	_____ . _____	☐ feet ☐ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	_____ . _____	☐ feet ☐ meters
f) Lowest adjacent (finished) grade next to building (LAG)	_____ . _____	☐ feet ☐ meters
g) Highest adjacent (finished) grade next to building (HAG)	_____ . _____	☐ feet ☐ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support	_____ . _____	☐ feet ☐ meters

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. *I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*

☐ Check here if comments are provided on back of form.
☐ Check here if attachments.

Were latitude and longitude in Section A provided by a licensed land surveyor? ☐ Yes ☐ No

PLACE SEAL HERE

Certifier's Name		License Number	
Title	Company Name		
Address	City	State	ZIP Code
Signature	Date	Telephone	

IMPORTANT: In these spaces, copy the corresponding information from Section A.	FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.	Policy Number:
City State ZIP Code	Company NAIC Number:

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)

Copy both sides of this Elevation Certificate for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments

Signature Date

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B,and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the LAG.

E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 8–9 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E3. Attached garage (top of slab) is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E4. Top of platform of machinery and/or equipment servicing the building is _____ . _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name

Address City State ZIP Code

Signature Date Telephone

Comments

☐ Check here if attachments.

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

G1. ☐ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4–G9) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate Of Compliance/Occupancy Issued

G7. This permit has been issued for: ☐ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ . _____ ☐ feet ☐ meters Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ . _____ ☐ feet ☐ meters Datum _____

G10. Community's design flood elevation: _____ . _____ ☐ feet ☐ meters Datum _____

Local Official's Name Title

Community Name Telephone

Signature Date

Comments

☐ Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			Policy Number:
City	State	ZIP Code	Company NAIC Number:

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.

BUILDING PHOTOGRAPHS

Continuation Page

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			Policy Number:
City	State	ZIP Code	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

Section 8

CITY OF MOORHEAD AS-BUILT CERTIFICATION (FORM B)

Parcel #	Address:

1. Benchmark/Reference Mark Information. Elevations cited herein are based on the following described benchmark
BM:_____

BM elevation is in: ❑ NGVD 1929 ❑ NAVD 1988

Floodproofing Design Level (FDL) is in: ❑ NGVD 1929 ❑ NAVD 1988

If the BM & FDL are in a different datum, conversion factor is _____

Latitude to 4 decimal places:_____ Longitude to 4 decimal places:_____

2. Structure	Required (Form A)	Actual As-Built
a) Top of bottom floor (including basement or crawl space)		
b) Top of next higher floor		
c) Attached garage (top of slab)		
d) Lowest elevation of machinery or equipment servicing the building (describe equipment)_____		
e) Lowest adjacent (finished) grade (LAG)		
f) Lowest opening		
3. Lowest compacted fill elevation at 15 ft from building		

4. For a building with a crawl space or enclosure(s) provide:
a) Square footage of crawl space or enclosure(s) _____ sq. ft.
b) No. of permanent flood openings in the crawl space or enclosure(s) walls within 1.0 foot above adjacent grade _____
c) Total net area of flood openings in 5 (b) _____ sq. in.

5. For a building with a detached garage, provide:
a) Square footage of detached garage _____ sq. ft.
b) No. of permanent flood openings in the detached garage within 1.0 foot above adjacent grade _____
c) Total net area of flood openings in 6 (b) _____ sq. in.

- CERTIFICATION –

I hereby certify that, to the best of my knowledge, information and belief, the subject structure is constructed in accordance with the elevations stated above.

Certifier's Name: _____

Signature: _____ Date: _____

Minnesota License No.:_____

Title: _____ Company: _____

Address: _____ Phone: _____

Section 9

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RESIDENTIAL BASEMENT FLOODPROOFING CERTIFICATE

See Reverse Side for Paperwork Burden Disclosure Statement

O.M.B. No. 1660-0033
Expires August 31, 2013

For use ONLY in communities that have been granted an exception by FEMA to allow the construction of floodproofed residential basements in Special Flood Hazard Areas.

BUILDING OWNER'S NAME	FOR INSURANCE COMPANY USE
	POLICY NUMBER
BUILDING STREET ADDRESS *(Including Apt., Unit Number)*	COMPANY NAIC NUMBER
OTHER DESCRIPTION *(Lot and Block Numbers, etc.)*	

CITY	STATE	ZIP CODE

SECTION I – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Provide the following from the FIRM and flood profile *(from Flood Insurance Study)*

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	ZONE	BASE FLOOD ELEVATION (IN AO ZONES, USE DEPTH)	NAME OF FLOODING SOURCE(S) AFFECTING BUILDING

SECTION II – FLOODPROOFING INFORMATION *(By a Registered Professional Engineer or Architect)*

Floodproofing Design Elevation Information:

Building is floodproofed to an elevation of _____ . ____ feet.
(Elevation datum used must be the same as that on the FIRM.)

Elevation of the top of the basement floor is _____ . ____ feet.
(Note: The floodproofing design elevation must be at least one foot above the Base Flood Elevation [BFE])

SECTION III – CERTIFICATION *(By a Registered Professional Engineer or Architect)*

Residential Floodproofed Basement Construction Certification:

I certify that, based upon development and/or review of structural design specifications, and plans for construction, including consideration of the depth, velocity, and duration of flooding and the type and permeability of soils at the site, the design and methods of construction of the floodproofed basement to be used are in accordance with accepted standards of practice for meeting the following provisions:

- Basement area, together with attendant utilities and sanitary facilities, is watertight to the floodproofing design elevation with walls that are impermeable to the passage of water without human intervention; and
- Basement walls and floor are capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy resulting from flooding to the floodproofing design elevation; and have been designed so that minimal damage will occur from floods that exceed the floodproofing design elevation; and
- Building design, including the floodproofing design elevation, complies with community requirements.

I certify that the information on this certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code Section 1001.

CERTIFIER'S NAME		LICENSE NUMBER *(or affix Seal)*	
TITLE	COMPANY NAME		
ADDRESS	CITY	STATE	ZIP
SIGNATURE	PHONE NO.		DATE

Copies of this certificate must be given to: 1) the community official; 2) the insurance agent; and 3) the building owner.

PAPERWORK BURDEN DISCLOSURE STATEMENT

Residential Basement Floodproofing Certificate

FEMA Form 086-0-24

Public reporting burden for this data collection is estimated to average 3.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this Residential Basement Floodproofing Certificate. You are not required to respond to this collection of information unless a valid OMB control number is displayed in the upper right corner of this Residential Basement Floodproofing Certificate. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0033) **NOTE: Do not send your completed form to this address.**