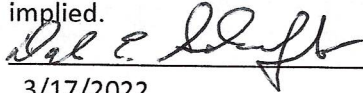


DALE MACKENSTADT RESINDENCEPROPERTY
76 EATON AVENUE, GREAT FALLS, MT
AMENDED EATON SUBURBAN ADDITION BLOCK 1 LOT 6
Section 20 T.20N., R.4E.
PROFESSIONAL ENGINEER CERTIFICATION

I, Dale E. Schaeffer, a Professional Engineer licensed to practice in the State of Montana, hereby certify that the proposed Residence on the property shown on the attached Site Plan will be constructed in general conformance with the Cascade County Floodplain Regulations adopted March 12, 2013.

- A. An encroachment analysis (where required) – **Not required**
- B. Adequacy of structural elevations – **The structural elevations provided by Architect MM Design are attached and appear adequate.**
- C. Determination of the base flood elevation – **Determined from FEMA FIRM Panel #30013C0626E and the Flood Insurance Study for the area. Base Flood Elevation is 3355.0. Proposed finished lower floor construction elevation is approximately 3350.4 after preparation of the site by the addition of compacted soil and gravel and a concrete slab set on footings. The next higher floor will be constructed on 8 inch concrete walls 8.0 feet high with 18 inch floor joists.**
- D. Flood-proofing, wet proofing, dry proofing – **Construction materials will be pressure treated 2 X 6's set 24 inches on center Power outlets will be installed 2 feet above the Base Blood Elevation along with any heating equipment.**
- E. Design and construction to withstand the flood depths – **A concrete monolithic floor 6 inches thick is proposed on 18" X 8" footings with 8 inch, 8.0 foot concrete walls. Residence walls are pressure treated wood 2 X 6's installed 24" on centers Framing and bracing plans are attached.**
- F. Hydrodynamic and hydrostatic pressures, velocities, impact, buoyancy, and uplift forces associated with the base flood elevation – **The building will be constructed on 16" X 8" concrete footings and 8 inch wide, 8.0 foot concrete walls. The upper floor is further supported by columns set on footings. Since the location is located on the southern fringe of the Floodplain, hydrodynamic and hydrostatic pressure would result mostly from backwater pressure which would be relieved by garage doors and little or no velocity forces would be expected. The proposed construction will not create a rise of more than 0.5 feet. Debris-induced loads present the highest level of unpredictability and danger to the building. The proposed 6-inch thick concrete floor anchored to a 16" X 8" footing and 8.0 foot high 8 inch concrete walls will significantly reduce any buoyancy or uplift forces. One stairway is proposed for the building.**

This certification is not intended to constitute a warranty or guarantee of performance expressed or implied.



3/17/2022

Signature of Professional Engineer

Registration No. 5206ES

Schaeffer Engineering & Land Surveying

1708 22nd Avenue South

Great Falls, MT 59405

