For the water supply requirements pertaining to NFPA 1403 live fire training, the NFPA 1142 Standard must be followed. The figures used in the following document have been overestimated intentionally to increase the margin of safety and preparation. For a more accurate flow, follow NFPA 1142 for the construction class, occupancy type, specific formula needed, and methods of measurement.

Structure Size: Basement 46’L x 23’W x8’H 1058’sq 8464’c

1st Floor 46’L x 23’W x 8’H + 25’L x 13’W (Open patio) 1383’sq 11,064’c

2nd Floor 25’L x 20’W x 8’H 500’sq 4000’c

Total Square Footage: 2941’sq

Total Cubic Footage: 23,528’c

2017 NFPA 1142

2017 NFPA 1142: 4.2.2 (Minimum 2000 Gallons)

2017 NFPA 1142: 4.6.3 (Minimum GPM Flow 250 GPM)

NFA Formula {(L x W)/3] x # Floors involved = Required Fire Flow in GPM

 {(46’ x 23’)/3] x 3 Floors = 1058 GPM (Based on largest footprint)

Iowa Formula (L x W x H) / 100 = 30 Second Application Rate

(23,528’c) / 100 = 235 GPM (30 Second Flow Rate for compartment fire)

2017 NFPA 1142:

4.2 For Structures with **NO** exposures:



WSmin = Min Water Supply in Gallons

 VSTot =Total Volume of Structure in ft3

 OHC = Occupancy Hazard Class (2022 NFPA 1142: 5.2.5.2) Dwelling OHC 7

 CC = Construction Class (2022 NFPA 1142: 6.2.2 (Dwelling)

 Table 6.2.1 Type V CC # 1.0

4.3 For Structures **WITH** exposures:

 

2017 NFPA 1142 Table H.2.4(c)

Precalculated Minimum Water Supplies (in Gallons) for Occupancy Hazard Classification 7 by Construction Classification (No Exposures)

23,528 ft3 primary structure = 3361 Gallons without Exposures calculated

2022 NFPA 1142: Table H.2.4c 24,000’cubic w/ CC of 1 = 3,429 Gallons without Exposures

Structure requirement x 1.5 for Single Exposure = 5042 Gallons with 1 Exposure