



Coffee Break Training - Fire Protection Series

Access and Water Supplies: Fire Flow Formulas: Part 22: National Fire Protection Association 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting Fire-protection Water Supply Example

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Learning Objective: The student will be able to calculate a sample fire-protection water requirement using the method from National Fire Protection Association (NFPA) 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting.

Now that we have the NFPA 1142 formula and can select Occupancy Hazard Classification (OHC) and Construction Classification (CC) numbers for the appropriate tables, let's calculate an example.

Using our 68,208 cubic foot building from Coffee Break Training FP-2014-3, we will determine the required water supply for a library of noncombustible construction. Using the formula $WS_{min} = (VS_{tot} \div OHC) \times CC$, we can use these values:



The fire-protection water supply requirements for this noncombustible library can be derived with the minimum water supply (MWS) formula from National Fire Protection Association (NFPA) 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting.

	Variable	Value
Total structure volume	VS_{tot}	68,208 cubic feet
Occupancy Hazard Classification number	OHC	5
Construction Classification number	CC	0.75
Calculation		$WS_{min} = (68,208 \text{ cubic feet} \div 5) \times 0.75$ $WS_{min} = 13,641 \times 0.75$
Minimum water supply	WS_{min}	10,231 gallons*

*Note that NFPA 1142 requires a minimum water supply of 2,000 gallons regardless of the results of the formula.

If the structure being evaluated has exposures within 50 feet, the resulting WS_{min} must be increased by 50 percent.

For more information on fire flow, you can take the NFA Online class "Testing and Evaluation of Water Supplies for Fire Protection" (Q0218) at <http://1.usa.gov/12JypCa>.

