



Coffee Break Training - Fire Protection Series

Access and Water Supplies: Fire Flow Formulas: Part 21: National Fire Protection Association 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting Occupancy Hazard Classification and Construction Classification Numbers

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Learning Objective: The student will be able to select values from the National Fire Protection Association (NFPA) 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting Occupancy Hazard Classification (OHC) and Construction Classification (CC) number tables.

To establish a fire-protection water supply value, NFPA 1142 relies on the volumetric size of a building and makes adjustments for OHCs and CCs.

Last week, we explained the NFPA 1142 fire flow formula that is:

$$WS_{min} = (VS_{tot} \div OHC) \times CC$$

Where:

- WS_{min} = minimum water supply
- VS_{tot} = total structure volume
- OHC = Occupancy Hazard Classification number
- CC = Construction Classification number

The values for the OHC number and CC number are selected from the following tables.



The required water supply for this small, non-combustible warehouse is derived using the Occupancy Hazard Classification (OHC) and Construction Classification (CC) numbers from National Fire Protection Association (NFPA) 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting*.

Occupancy Hazard Classification Number	Samples*
3	Flammable liquid spraying, plywood and particle board manufacturing, sawmills, upholstering with plastic foams
4	Barns and stables, mercantile, paper and pulp mills, repair garages, piers and wharves, department stores
5	Amusement occupancies, cold storage warehouses, machine shops, libraries, restaurants, unoccupied buildings
6	Bakeries, barber or beauty shops, canneries, cement plants, post offices, gasoline services stations, electronics plants
7	Apartments, colleges and universities, museums, hotels and motels, schools, theaters without stages, hospitals

*Note: This is **not** the complete list from NFPA 1142.

The CC number comes from the following table:

Description	Classification Value
Wood Frame	1.5
Heavy Timber	0.75
Masonry (Ordinary)	1.0
Noncombustible	0.75
Fire-resistive	0.5

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>.



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