



June 9, 2023

Re: EXP Project All-2201822 Extencicare - Orleans

Fire Under Writers Survey - Fire Flow Calculations

1. RFF = 220 C VA

Where:

RFF = the required fire flow in litres per minute

C = Construction coefficient

A = Total effective floor area of the building

2. **For Extencicare – Orleans**

C = 0.8 (for Type II Non-Combustible Construction)

A = The building has all vertical openings protected. Therefore, for this building the effective floor area is defined as the Second Floor area plus 25% of each of the two immediate adjoining floor areas

First Floor area = 3,418m²

Second Floor area = 3,307 m²

Third Floor area = 3,042 m²

Therefore, effective area

= 3307m² + (25% of 3,418 m²) + (25% of 3042 m²)

= 3307 m² + 854.5m² + 760.5m²

A = 4,922m²

3. **RFF** = 220 x 0.8 x √4,922 m²

= 220 x 0.8 x 70.16

= 12,348 LPM

= 12,000 LPM (rounded to the nearest 1000 LPM)

4. **Occupancy and Contents Factor**

For treatment occupancies, FFR can be reduced by 25%

Therefore RFF = 12,000 - (25% x 12,000) = 9,000 LPM

5. **Automatic Sprinkler Protection**

The Building will have an automatic sprinkler system. Therefore, the RFF can be reduced by 50%

Therefore,
$$\begin{aligned} \text{RFF} &= 50\% \times 12,000 \text{ LPM} \\ &= 6,000 \text{ LPM} \end{aligned}$$

6. **Exposure Adjustment Change** = 0%

Therefore, the final RFF for this facility, including adjustments for occupancy and protective equipment is:

$$\begin{aligned} \text{RFF} &= 9000 \text{ LPM} - 6,000 \text{ LPM} \\ &= \mathbf{3,000 \text{ LPM}} \end{aligned}$$

Calculations produced by:



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