

# THORNTON-IN-CRAVEN VILLAGE HALL (TiCVH)

## MAXIMUM SAFE OCCUPANT CAPACITY

### Basic Calculation for Hall / Room Safe Occupancy Figures

Two calculations, in conjunction with the type of event being held, need to be used to establish the number of persons the hall will accommodate and evacuate safely:

**Exit Capacity** - the number and width sizes of exit doors and the time it would take for persons to pass through them.

**Occupant Capacity** - the capacity of the hall in relation to its size and type of event being held.

Both calculations need to be undertaken with the lower number calculated used as the maximum occupancy figure.

### **Safe Occupancy Rules**

In order for the capacities to be correctly calculated there are a number of rules that must be followed:

Rule 1 - Any calculation should allow for a complete evacuation of the hall directly to the outside within 2½ minutes.

Rule 2 - All exit doors must allow at least 40 people to exit within 1 minute.

Rule 3 - The minimum width of an exit door should be no less than 0.750m. Door widths less than 0.750m should not be included in any calculation.

Rule 4 - Exit doors that do not lead directly to the outside must not be used in the calculation except the main entrance door, which can be used.

Rule 5 - When calculating the exit capacity, it must be assumed that during a fire situation the fire will block one door. As there is no way of determining which door will be affected, in the interest of public safety it must be assumed that this will be the largest door, therefore you have to exclude the largest exit width (door) when making the calculation.

Rule 6 - Where there is only 1 exit/access point, you are limited to a maximum of 60 people, irrespective of floor size, exit width or hall use. This figure is reduced if the occupancy capacity is lower than 60.

Rule 7 - Always round part figures down e.g. 385.3 would be rounded down to 385.

Rule 8 - Both calculations must be undertaken with the lower number calculated used as the maximum occupancy figure.

Rule 9 - Premises with less than an adequate standard of construction should have the occupancies restricted by up to 20%.

Rule 10 - Revolving or sliding doors should not be considered in the calculation of available exit widths.

Rule 11 - Exits must be well separated. In this context 'well separated' is taken to mean that two exits are far enough apart so that a fire could not make them unusable. However it should be noted that the 45-degree rule would always apply with respect to separation of fire exits.

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Rule 12 - An external exit door in a corridor can be used providing, that it is a final exit door, leads to a place of safety and is opposite the hall door, this door should be the one used in the calculation not the hall door.

Rule 13 - Fire exits must never be locked. All exit doors should be easily opened from within, must never require a key to open and open in the direction of escape.

Rule 14 - Final exits should lead to a place of ultimate safety i.e. not an enclosed yard or garden.

Rule 15 - Exit doors that may be utilised by wheelchair users require a minimum width of not less than 900mm.

Rule 16 - Travel distances to a final exit should not exceed 18metres in one direction or 45metres where an alternative is provided.

Rule 17 - An Evacuation route from a hall through a kitchen area cannot be considered, as these areas are not a 'protected escape route' and can be extremely hazardous.

Rule 18 - In a hall with a stage, whether fixed or portable, the stage should be calculated separately.

### **Calculating - Exit Capacity**

To establish the number of persons the hall will accommodate in relation to the number of exit doors (ie. the exit capacity) the following steps must be carried out:

- Measure and add together the widths of all the exit doors (in metres)
- Divide by 0.750m (minimum single door width)
- Multiply by 40 (maximum number of persons exiting per minute)
- Multiply by 2.5 (minutes to evacuate)

### **Thornton-in-Craven village hall - Exit capacity**

Front Door width = 1.2m

Bar Fire Escape width = 1.0m

The front door being largest exit door must be discarded under rule 5

$$1.0\text{m} \div 0.75 = 1.3 \times 40 = 52 \times 2.5 = 130$$

**Total exit capacity is 130**

### **Calculating - Occupant capacity**

This is related to hall size and density of people within the available floor space. When the hall is in use an occupant load factor value (m<sup>2</sup> per person) is introduced, in relation to the floor area being used.

Various events, such as discos, conferences, dining facilities etc. will have different load factor values. See below for occupant load factors.

The calculation, therefore, is the size of the hall (in square metres) divided by the occupant load factor.

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### Occupant Load factor

Use of Hall / Room	m <sup>2</sup> per person
Area for standing	0.3
Amusement arcade, assembly hall, bingo hall, club concourse, crush hall, dance hall, pop concert, queuing area etc	0.5
Bar	0.3 – 0.5 *
Bowling alley, billiard room, games & sporting activities	9.3
Conferences, dining room, restaurant etc	1.0 – 1.5 *
Studio (radio, film, television, recording)	1.4
Common room eg. lounge, reading room, staff room, waiting room	1.0

\* Depending upon amount of seating and tables to be provided

### Thornton-in-Craven village hall - Occupant capacity

Bar Area 7m x 4m = 28m<sup>2</sup>. Divide by the occupant load factor for conferences, dining room, restaurant etc, which is 1.0

$$28 \div 1.0 = 28$$

Main Hall 10m x 6m = 60m<sup>2</sup>. Divide by the occupant load factor for discos, which is 0.5.

$$60 \div 0.5 = 120$$

$$28 + 120 = 148$$

**Total Occupant Capacity 148**

### Recommendation

The maximum safe occupant capacity for Thornton-in-Craven village hall is the 130 exit capacity, as it is the lower than the 148 occupant capacity.