

External wall fires, stairwell location and evacuation tactics.

External wall fires are becoming more common and firefighters worldwide are gaining a major learning experience in witnessing such fire spread first hand, or from afar. It is certain that global media coverage ensures firefighters won't forget what their eyes saw on a TV screen, leaving a permanent memory but then also enabling them to consider in advance their tactical and strategic approaches to such a conflagration. How critical is a speedy and fire service supported evacuation as opposed to 'defend in place' tactics?



Figures 1 and 2 – The high-rise apartment building fire at Jiaozhou Road, Shanghai, China 2010

There may be different tactical emphases between evacuation and defending in place (stay put) depending on building floor layout, speed and extent of fire spread and compartment integrity. As an example, there may be a totally different approach needed by firefighters where the egress stairs are located on an outside wall, compared to a central core location. A stairwell located adjacent to an outside wall may mean a shorter time-frame in which to evacuate occupants than a central core building, where several layers of fire resisting protection may exist between fire, smoke, heat and stairs. It may also mean that there will be little or no opportunity to evacuate if vertical egress routes are located on the same side of the building, where fire is spreading externally upwards. In such a case, stairwell protection strategy takes on a whole new approach where the immediate application of external firefighting streams may be life critical.

An example of this is the fire that occurred in Shanghai, China in 2010 (**Figures 1-3**) where an external wall fire reportedly originated on the same side of the building as the only two egress stairs, very quickly blocking escape for 58 occupants all who tragically lost their lives. The fire itself began within an architectural inset of the building, where upwards fire growth is known to be enhanced by the *trench like conditions*, creating extremely intense and rapid fire spread. The fire would eventually involve almost the entire building. Considering such an event from a fire command perspective, without a means of alerting residents immediately of

the risk, any assisted evacuation of a building facing this scenario would be near impossible within such a short time-frame without attention being directed at protecting the fire from impacting the stairwells from outside the building. Therefore, buildings with combustible walls and egress stairs located adjacent to an external wall may present a far greater risk to residents than a central core building.

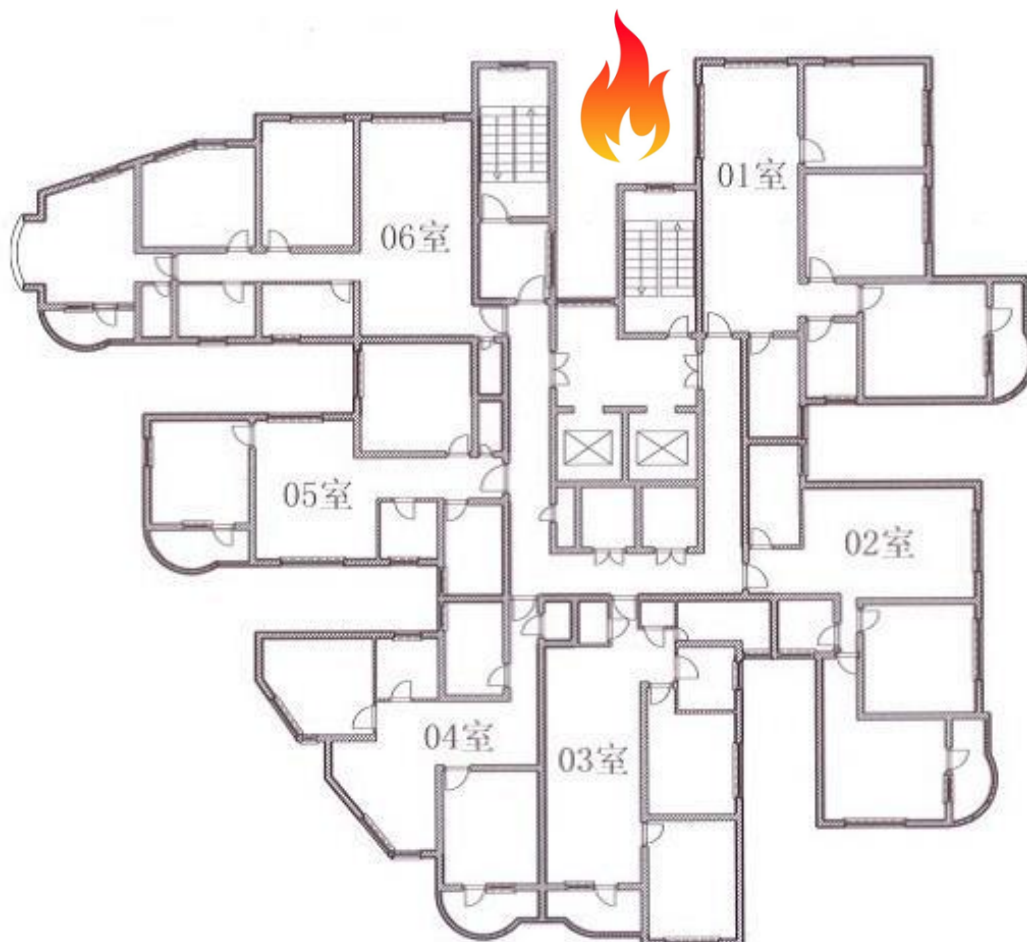


Figure 3 – The building layout and fire origin at Jiaozhou Road, Shanghai, China 2010

When you next inspect or carry out a familiarisation visit to a high-rise building known (or suspected) to have combustible external walls, take note of the following points –

Are the egress stairwell/s located and protected within a central core, or are they located adjacent to an external wall with natural window lighting?	
Is the combustible parts of the external wall close to stairwell windows?	
Is there access for an aerial appliance to this face of the wall/s?	
Are ground monitors available on the initial attendance?	
Will exterior streams reach the full height of the building?	
Is there an adequate (flow and pressure tested) hydrant close by with easy access?	
Is the building sprinkler protected?	
Does the occupancy comprise of an functionally impaired persons? If so where are they located and what facilities are available for their rescue?	
Is this information recorded on your Tactical Plan for the building?	