Jeremy Gardner Associates
Technical Note

Kingsway House, London
Single Stair Fire Strategy Principles

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INTRODUCTION

Kingsway House is a proposed façade retention office building refurbishment. There will be 8 storeys of offices above Ground Floor served by a single stair. The top storey is 29.7m above ground level.

To comply with current standards in office buildings, floors more than 11m above ground level should have at least two escape routes (i.e. two stairs). The proposal is a significant departure from guidance and will carry an approvals risk. This report summarises the key fire strategy measures that will form part of the fire engineering solution to support the proposals.

ACTIVE FIRE SAFETY SYSTEMS

Sprinklers

In a code compliant office building with two stairs and a top floor less than 30m, sprinklers are not required. Sprinklers will be provided in Kingsway House to support the single stair strategy. Sprinklers will control the fire growth and the volume of smoke produced, and may even extinguish the fire. This will provide significant benefit in comparison with a code compliant unsprinklered office building in which a fire would be uncontrolled.

Fire Alarm System

To support the single stair strategy, a fire detection and alarm system to an L1 standard will be needed. This will provide an early warning to occupants of a fire anywhere in the building including remote rooms. This should ensure the evacuation starts quickly.

This will provide significant benefit compared to a code compliant office building which only requires manual a call fire alarm system. In this case a fire could grow unnoticed for a long period of time.

EVACUATION STRATEGY

A simultaneous evacuation strategy will need to be adopted in Kingsway House. Once the alarm is raised, this should ensure all occupants vacate the building quickly.

MEANS OF ESCAPE

Occupancy

Each office floor is provided with a single exit into the stair. Therefore the maximum occupancy on each office floor should not exceed 60. This corresponds to a floor space factor of approximately 5.3m^2/person.

Exit Capacity

The single exit from each office floor should be at least 800mm wide. An 800mm doors will provide a surplus in escape capacity and should ensure reduce queueing time into the stair.

Travel Distances

Travel distances within the office floors to the exit will need to be restricted to 26m after fit out.

Stair Capacity

The single stair should be at least 1100mm wide.

Smoke Venting

The stair will need to be provided with a smoke vented lobby at all levels. This will need to be into mechanically assisted smoke shaft. On a similar project, the Fire Brigade requested that the smoke venting system to achieve comparable performance to a pressurisation system. This corresponds to flow rate through the door separating the stair from the lobby of to 2m/s.

COMPARTMENT FLOORS

Floors should be constructed as compartment floors.

SERVICE RISERS

Service risers opening into the stair will not be permitted. Risers opening into the fire fighting lobby will need to be limited to risers supporting fire fighting operations i.e. dry riser, sprinkler valves, etc.

All other service risers will need to be accessed from outside of the fire fighting core.