

THE PISTON EFFECT IN LIFT SHAFTS

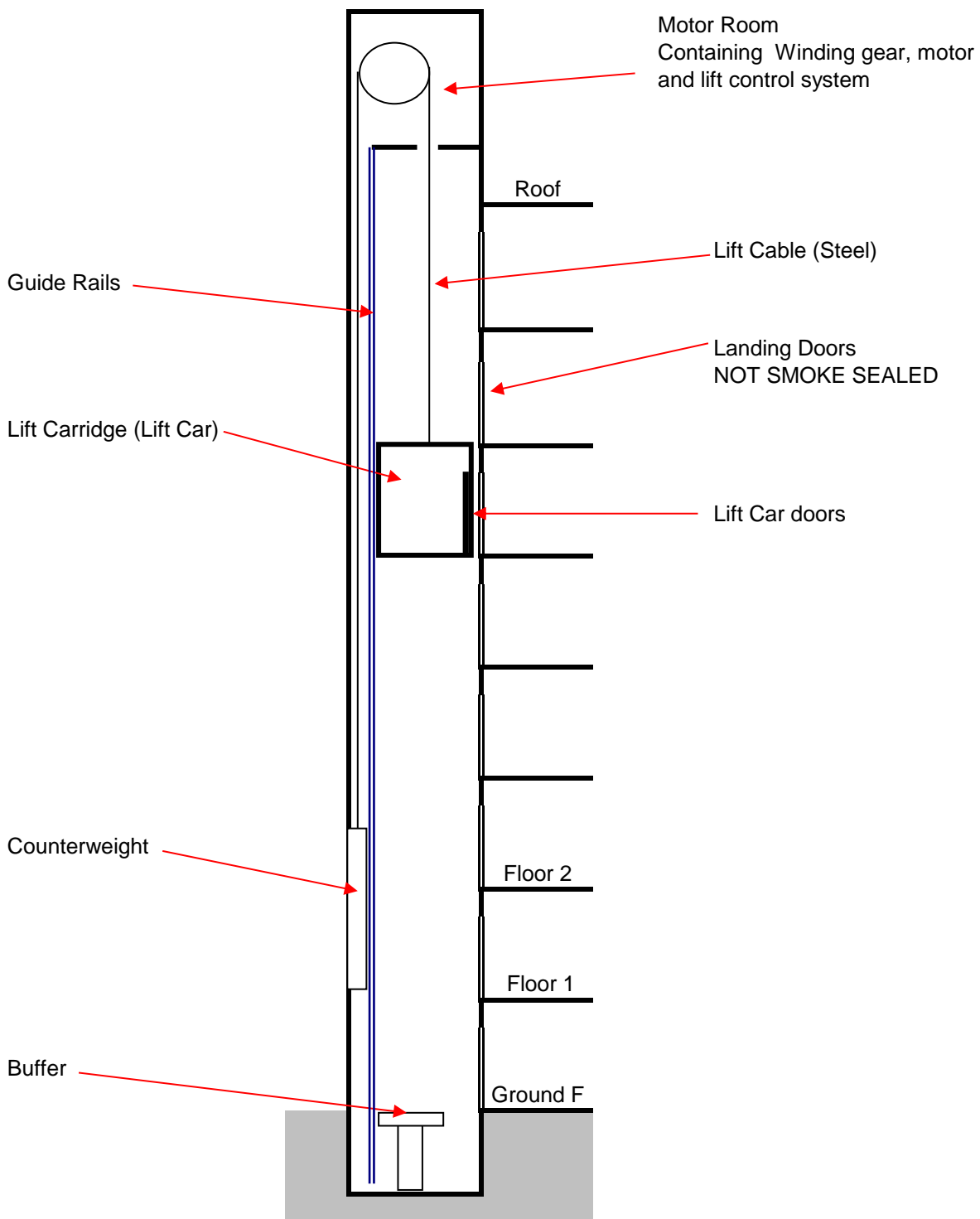
Mark Fishlock

Jul-11

Lift shafts are not pressure sealed environments

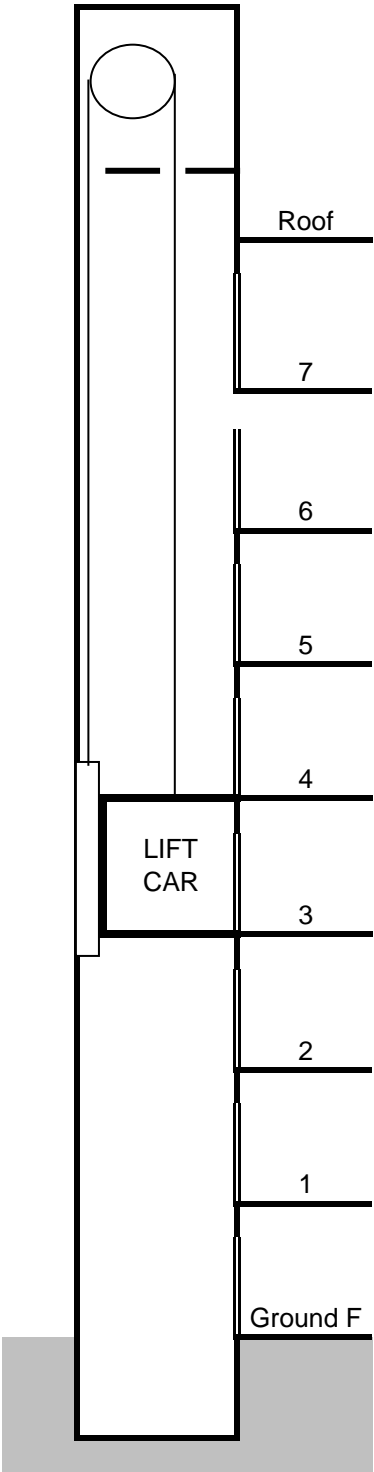
Most lifts have no SMOKE seals

Multiple lifts in same shaft can increase the effect



THE PISTON EFFECT

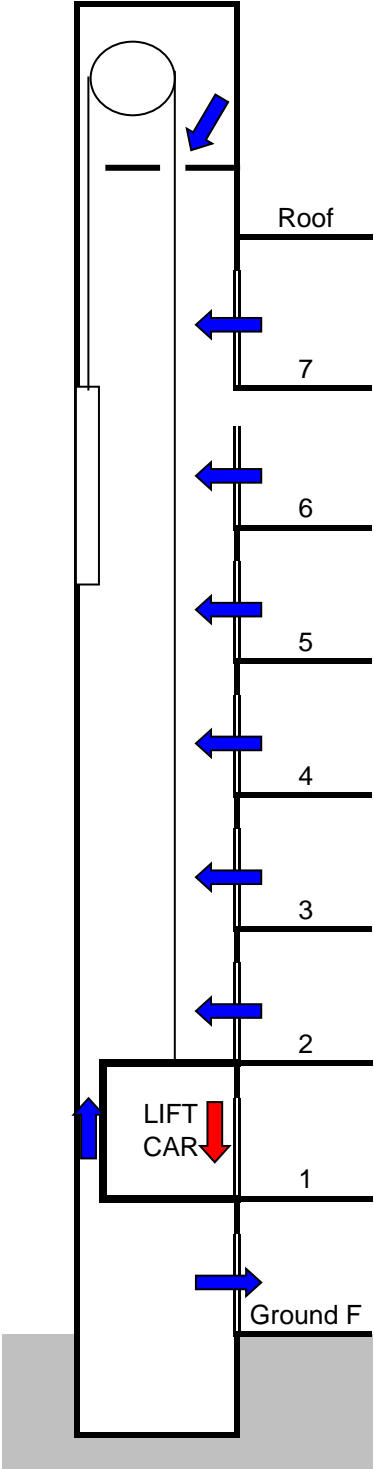
Lift Car is STATIONARY



Pressure is neutral in lift car, In the lift shaft (above and Below the Car)
Pressure is neutral in all the lobbies.
Pressure is neutral in the Motor room

THE PISTON EFFECT

Lift Car is MOVING DOWN



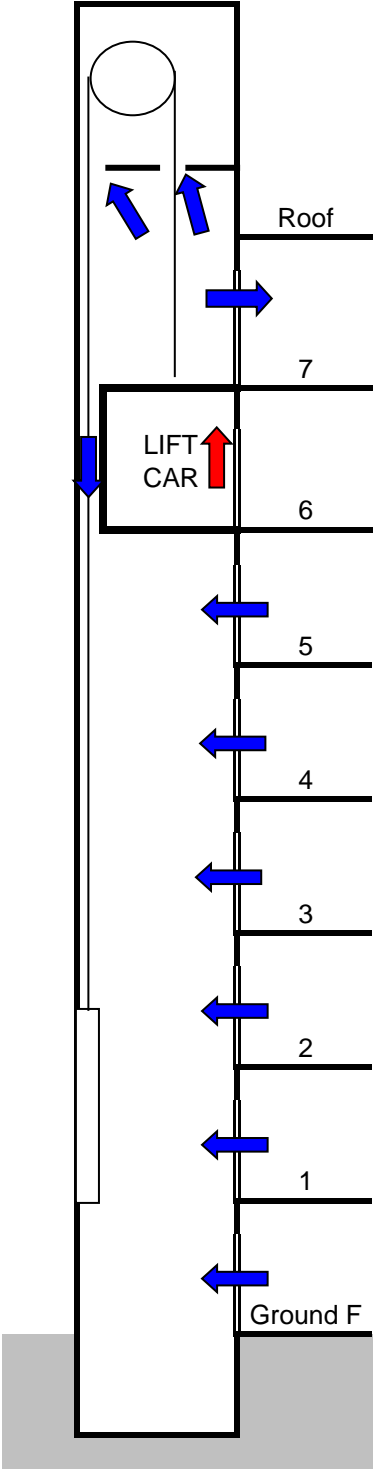
Pressure is neutral in lift car.
The of air ABOVE the lift car is slightly NEGATIVE pressure
The air BELOW the lift car will be slightly POSITIVE pressure
There will be correctional air flow around the lift car and through Gaps in the construction of the lift shaft (including the landing doors)

Air will be expelled into the lift lobbies BELOW the lift car
Air will be drawn from the lift lobbies above the car and from the Motor room (Normally on the roof in High Rise buildings)

← = Air flow directions

THE PISTON EFFECT

Lift Car is MOVING UP



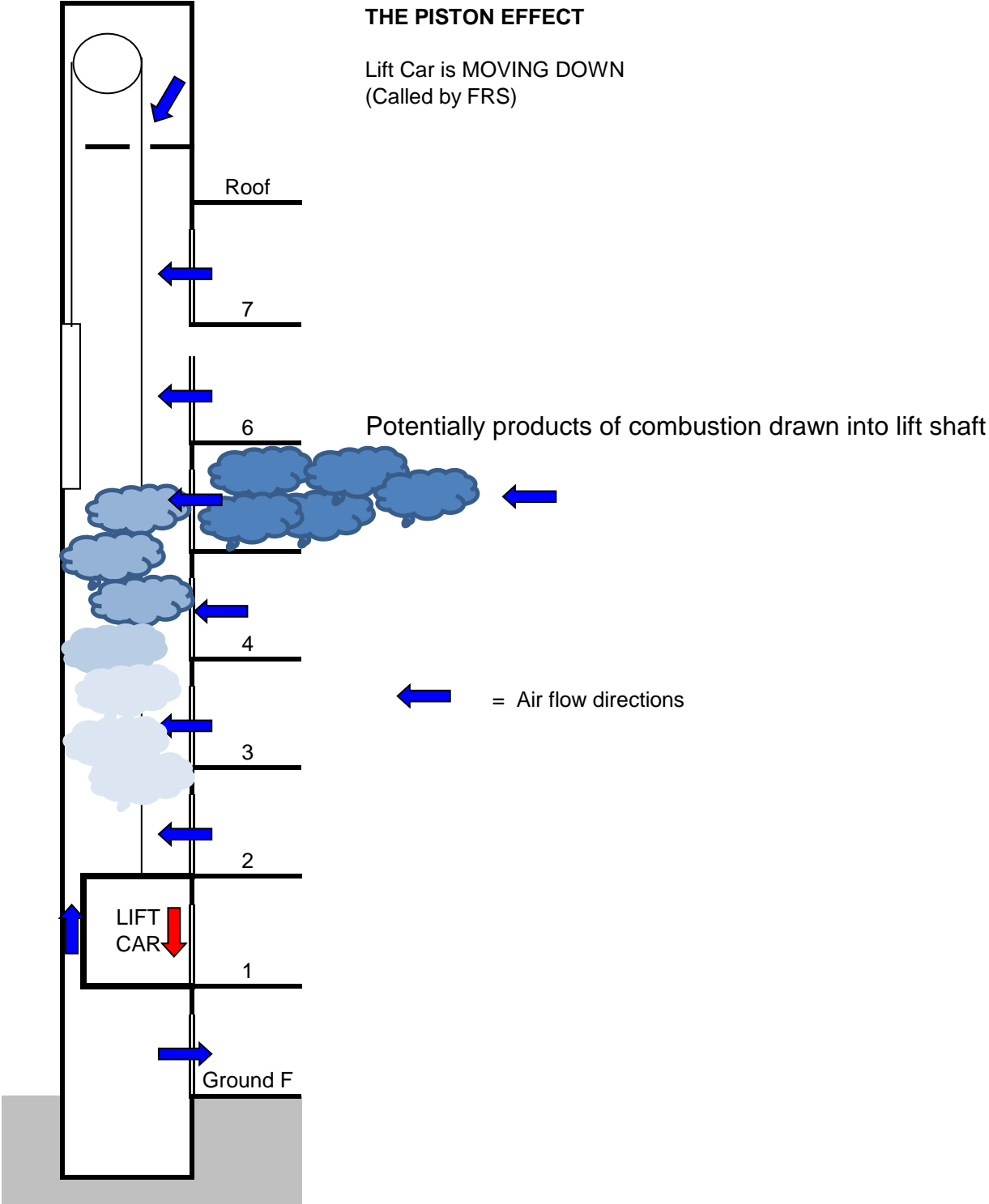
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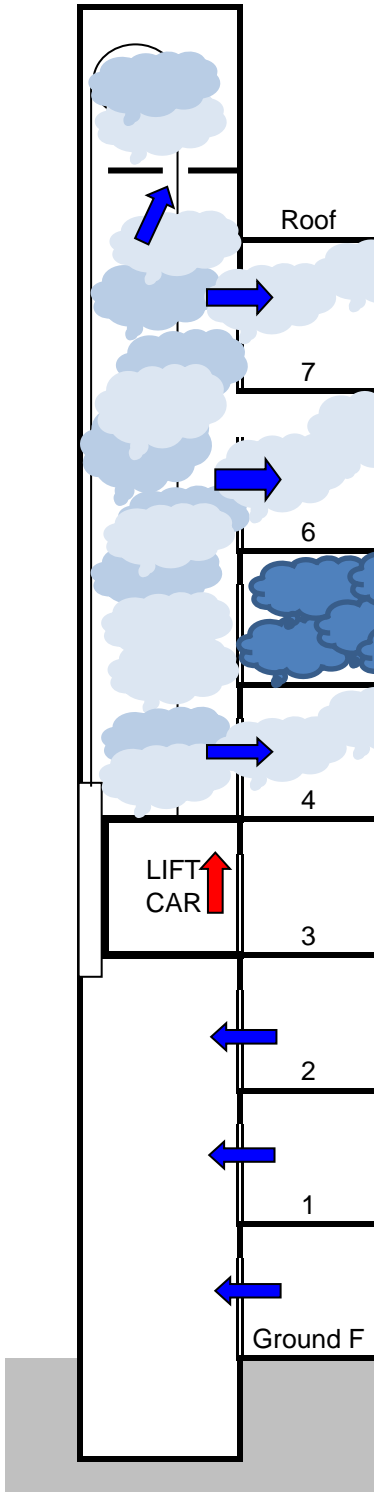
THE PISTON EFFECT

Lift Car is MOVING DOWN
(Called by FRS)



THE PISTON EFFECT

Lift Car has moved UP
Crews deploying



Products of combustion that were drawn into lift shaft
are mixed and expelled on other unaffected floors