Step 3 - Design Example

For the purpose of estimating costs, the steps below may be bypassed. Allow 5N of thrust per 100m² of car park floor area to approximate the number of fans required.

Fans should be placed in the laneways with the air blowing along them. This will ensure that the high air velocities close to the outlet nozzle do not significantly disturb pedestrian traffic as velocities will be lower at the lane edges. Also, ensure that the throw pattern of the selected fan is long enough to reach the next impulse fan.

Figure 12 shows an example of how fans are sized and placed based on floor area.

Design parameters;

- Based on 5N per 100m² floor area,
- minimum total fan thrust = car park floor area x $5N/100m^2$
 - $= 1920m^2 \times 5N/100m^2$
 - = 96N
- · Minimum thrust criteria can be achieved with 4 x JISU-CPC-50N fans on low speed (operating thrust 25N), total fan thrust= 25N x 4= 100N.
- Fans are spaced within the 30m spacing recommendation for 25N thrust.
- Final fan to wall spacing under 40m maximum spacing guide lines for 25N fan thrust. This is because the exhaust point is an area of low pressure, making it likely to enhance the fan throw distance.



Placement of CO sensors:

Because the guidelines for positioning CO sensors in AS/NZS1668.2:2012 is based on a ducted system, we propose that the following guidelines be used as a starting point for their placement in a jet fan system.

- 1. No part of the enclosure shall be greater than 25 metres from a sampling point. (A 50 metre diameter circle around a CO sensor can show coverage areas).
- 2. Additional detectors shall be installed in areas where people may congregate within the car park and are not within separately ventilated areas.
- 3. The most practical mounting position for a CO sensor within a car park is the support columns.
- 4. CO sensors will be more effective if placed in areas where CO levels are likely to be high. Eg. Placing a CO sensor in front of a fresh air intake is not likely to be effective.

If jet fans are placed in each laneway of a car park and the recommended low speed jetfan spacings are followed, the above guidelines can be achieved by using one CO sensor per jet fan and providing additional CO sensors at congregation points. Therefore, for this car park we would suggest installing 5 (4 + 1) CO sensors for good coverage.

	Key
	CO Sensor (1 or 2 per fan)
	RS485 ComLink cable
	3 Phase Power Supply
E	Fan 4 JetVent EC Fans
29	5 CO Sensors
	CONTROLER 1 Controller
	2 Variable Speed Drives (VSD)
	Termination (120R 1/4W)
L.	

Car park floor area = $1920m^2$