



## A design guide to the effectiveness/sizing/performance of a fan-assisted ceiling mounted unit

Ultraviolet germicidal irradiation (UVGI) destroys all bacteria and viruses by preventing them from reproducing or growing. Actual real-life destruction rates can only ever be estimated though different units can be compared based on UV power. SPC uses a 35W Philips UV lamp.

- UVGI will be as successful against Covid-19 as it is against other SARS viruses. (see CIBSE Covid-19 Ventilation Guidance section 6 'UV disinfection').
- Laboratory experimentation only gives accurate results for specific closely controlled laboratory conditions. Real life applications are affected by space and room physical conditions and temperature/humidity/air quality.
- An air throughput equivalent to 2 ACH (air changes per hour) or more means that contaminated air is repeatedly treated leading to very low survival rates. The effect of continuous recirculation is to render the dosage equally effective as a much greater dosage applied to a once through system. Under these conditions, the 35W lamp used is more than sufficient for the room that a single unit would be sized against.
- Only absolute measures of certified lamp power ratings are meaningful when comparing units.
- SPC have been providing UV air purification solutions for 15 years in the UK & the Middle East.

### Example

Typical room 8m wide x 8m long x 2.5m high. 1 x SPC BioGrid ceiling mounted (2.5m-3m) centrally in the room. Operating at low speed which is 110l/s giving 2.5 air changes per hour.

The unit works efficiently if the air is recirculated and is not subject to open windows with just the occasional use of an access door (winter months). If windows and doors remain open to outside air, therefore well ventilated, there is no need for SPC BioGrid UV to be operational (summer months).

Whilst operational in the correct conditions, the 35W Philips bulb can offer 98% effectiveness.

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