

Managing orchids in winter in Canberra



Plant placement outside



Electrical Heaters



Electricity and water don't
mix

Ingress Protection

- ▶ An international code published by the International Electrotechnical Commission
- ▶ IP # & where
 - ▶ # (0-6) is for solid particle protection
 - ▶ Objects >50mm down to dust-tight
 - ▶ & (0-9) is for liquid ingress protection
 - ▶ Liquid: no protection, drip, splash, spray, immersion

Ingress Protection: Liquid

Level	Protection against	Effective against
0	None	—
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect on the specimen when mounted in an upright position onto a turntable and rotated at 1 RPM.
2	Dripping water when tilted at 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle of 15° from its normal position. A total of four positions are tested within two axes.
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect, utilizing either: a) an oscillating fixture (5 min), or b) A spray nozzle with a counterbalanced shield (5 min)
4	Splashing of water	Water splashing against the enclosure from any direction shall have no harmful effect, utilizing either: a) an oscillating fixture (10 min), or b) A spray nozzle with no shield (5 min)
5	Water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.
6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.

Tube Heater



- ▶ Convection heating
- ▶ Built in thermostat
- ▶ Low power usage (10W 60cm, 20W 120cm)
- ▶ For frost protection
- ▶ 2-4 needed for small house
- ▶ IP55 (water jets)
- ▶ From Sproutwell Greenhouses
 - ▶ 60cm - \$50
 - ▶ 120cm - \$65

Domestic fan heaters

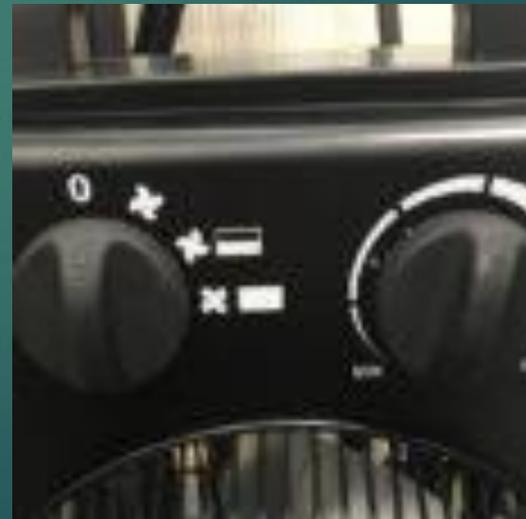
- ▶ Variable IP (usually <4) so protection from drips and sprays is needed
- ▶ Fan only works when unit is heating on



Sproutwell 2kw heater



- ▶ Fan runs continuously
- ▶ Thermostatically controlled
- ▶ IPX4 (splashing water)
- ▶ Sproutwell \$119



GEM 2kw heater with plenum and sock



Adequate for 3 x 4 m house

Fan runs constantly

Heating is gentle and comes out from the sock at several points

From The Glasshouse Company or Sage Horticultural

- ▶ \$599 heater only
- ▶ \$695 with plenum and sock

GEM heater in situ





Using a small
plastic-covered
greenhouse for a
few small plants



