

I. FRESH AIR VENTILATION

I1. Vertical Exhaust Axial Fans

Roof-Mounted Extraction Fans:

- Galvanized steel sheet construction
- Impeller made of aluminium sheet or galvanised sheet metal.
- Galvanized bird protection grid should be included
- Power supply should be Single-phase 220V 50 Hz single phase or 380 VAC 50 Hz three-phase.
- Fan motors are to have ingress protection of at least IP64.

Rates shall include supply and delivery to site including all fasteners and sundries required to mount the fan to the roof. Water proofing to be costed elsewhere as well as site installation labour, testing and commissioning.

Rates to be given for each fan size listed in the Schedule of Rates as follows:

- 400mm diameter roof fan, 2 000 m3/hr with static pressure of 150 Pa.
- 500mm diameter roof fan, 3 000 m3/hr with static pressure of 150 Pa.
- 560mm diameter roof fan, 5 000 m3/hr with static pressure of 200 Pa.

Fans shall be selected to deliver the stated volume flow rate against the stated static pressure. The free-delivery flow rate of the offered fan must be at least 10–15% higher than the duty flow to allow for system effects and future fouling.

I2. Tubular Axial Fans

- Hot dip galvanised tubular sheet steel casing
- Impeller made of aluminium or galvanised mild steel.
- Power supply should be single-phase 220V 50 Hz single phase or 380 VAC three-phase.
- Fan motors are to have ingress protection of at least IP64.
- Fan to be an in-line duct mounted fan.

Rates shall include supply and delivery to site including all fasteners and sundries required to mount the fan to ducting or wall. Site installation labour, testing and commissioning to be costed elsewhere.

Rates to be given for each fan size listed in the Schedule of Rates as follows:

- 600mm diameter inline fan, 12 000 m3/hr with static pressure of 100 Pa.
- 700mm diameter inline fan, 15 000 m3/hr with static pressure of 200 Pa.
- 800mm diameter inline fan, 24 000 m3/hr with static pressure of 200 Pa.

Fans shall be selected to deliver the stated volume flow rate against the stated static pressure. The free-delivery flow rate of the offered fan must be at least 10–15% higher than the duty flow to allow for system effects and future fouling.

I3. to I8. Spiral Ducting

- All ductwork including straight sections, tapers, elbows, branches, shoe pieces, collars, terminal diffuse boxes and other transformation pieces must be factory – fabricated according to all applicable SARACCA standards including SANS 1238:2005.
- All ducts, transverse duct connectors (flanges/cleats) and accessories or related hardware such as support systems will be zinc coated (galvanized).
- The fabricated duct dimensions should be as per approved drawings and all connecting sections are dimensionally matched to avoid any gaps.
- Ducts shall be straight and smooth on the inside.
- Changes in dimensions and shape of ducts shall be gradual (between 1:4 and 1:7).
- Supports for round ducts should be a completely galvanized system consisting of fully threaded rods, double L bottom brackets (made from minimum 3.0 mm thick M.S. sheet), nuts, washers and suspension bolts should be used to anchor all ducting to their respective support structures as specified in SANS 0173. Rates for supports should be included in the installation of ducting.

General

Rates shall include supply and delivery to site including all fasteners and sundries required. Site installation labour

to be costed elsewhere.

Rigid and flexible ducting shall be measured on a linear basis along the run of the duct and priced accordingly. The measurement shall include all lengths from end to end of ducting. Single duct runs will be measured individually and according to the duct size. Pricing will be rounded to the nearest full meter.

Flexible ducting may only be used for the immediate connection between rigid ducting and diffusers/grills, and should be kept straight and to the absolute minimum length. Flexible ducting shall not obstruct airflow or cause undue pressure losses.

All ducts are designated "Low Velocity Ducts" and the duct sizes indicated on drawings shall refer to clear internal dimensions.

All screws and fastening devices of grilles, louvers, etc., shall be corrosion resistant.

All support steelwork, including hanger rods and brackets must be galvanised. Steelwork exposed to the elements must be hot dip galvanised after all fabrication work is complete. Fasteners are to be galvanised and where exposed to the elements are to be stainless steel. Fixing screws for grilles and louvers are to be stainless steel.

All dissimilar metals are to be galvanically isolated from each other by nylon spacers.

All ductwork to be manufactured and installed in accordance with SANS 1238, SANS 10173 and SANS 10400.
Equipment required

I9. to I11. Air Diffusers

Air diffusers are to have a throw pattern with equal throw in all directions. Diffusers to be manufactured out of aluminium with a minimum of 50mm boarder frame. Diffusers to have adjustable blades.

Rates for the supply of different sizes of diffuser as per price schedule.

A rate for the supply of a plenum box for each diffuser is also requested.

Diffuser plenum box should be manufactured out of aluminium or galvanised sheet metal and should feature a spigot of appropriate size for connection to ducting.

Rate shall include all sundries for mounting air diffuser to plenum box and plenum box to ducting as well as allowance for galvanised metal supports of the diffuser and plenum to hang from roof/ceiling with a maximum distance of 2m. All aluminium hardware supplied should be natural anodised finish.

I12. to I13. Intake Weather louvres

Weather louvers are to have blades spaced 50mm apart, manufactured out of aluminium with a minimum of 50mm boarder frame. Weather louvers to feature galvanised metal bird/rodent mesh.

Rates shall include the supply and delivery of different sizes of weather louver as per price schedule.

A rate for the supply of a plenum box for each weather louvers is also requested.

Plenum box should be manufactured out of aluminium or galvanised sheet metal and should feature a spigot of appropriate size for connection to ducting/ attenuators.

Rate shall include all hardware and sundries for mounting weather louver to plenum box and plenum box to ducting/attenuator as well as allowance for galvanised metal supports for the weather louver and plenum to a wall or floor with a maximum distance of 0.7m. All aluminium hardware supplied should be natural anodised finish.