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Ref: Plan Submission Guide - 2009

DIRECTORATE: CITY HEALTH – ENVIRONMENTAL HEALTH – SPECIALISED SERVICES

Dear Sir/Madam

PLAN SUBMISSION GUIDE: ARTIFICIAL VENTILATION REQUIREMENTS

When submitting artificial ventilation (and/or air conditioning) plans to the Executive Director: Strategy & Planning for consideration and approval, kindly check that they comply with the following:

- **National Building Regulations [NBR]** and Building Standards Act (Act No. 103 of 1977),
- **South African Bureau of Standards Code of Practice 0400-1990 [SABS]**,
- **Noise Control Regulations [NCR]** promulgated in terms of Section 25 of the
- **Environment Conservation Act (Act No. 73 of 1989)**,
- **Tobacco Products Control Amendment Act (Act No. 12 of 1999) [TPCA]**,
- **Businesses Act (Act No. 71 of 1991) [BA]** and the
- **Occupational Health & Safety Act (Act No. 85 of 1993)** (applicable to factory or industrial processes).

The following Regulations and other requirements may be applicable to the plans (where the letters "SABS" appear without the reference number of the standard, SABS Code of Practice 0400 is implied):

1. Regulations:
 - (a) **Air conditioning** and ventilation systems, plenums, ducting, fire precautions, fire dampers..... NBR T1(1) & SABS TT43
 - (b) **Air quantities** in litres per second..... NBR O1(1), SABS OO7.10 & Table 2
 - (c) **Atriums** and Shopping Malls.....NBR T1 & SABS Part TT
 - (d) **Condensate** control (water conservation)..... NBR O5(1)(a), SABS OO7.8
 - (e) An E.C.S.A. Registered Professional Engineer must certify the **Design** of artificial ventilation systems (use A19 form – page 7 & 8) NBR A4(1)(b) & (8)(b), O4
 - (f) **Exhausts:** (toilets, bathrooms, etc.) NBR O1(1), SABS OO7.2; 007.4; OO7.5
 - (g) **Fresh air source** and **Filtration** specifications NBR O1(1) & SABS OO7.1
 - (h) **Fixed seating** (includes furniture and fixtures)NBR A2(1)(f)(v)
 - (i) **Generators** discharge and noise..... NCR 4 & 5, NBR V1

- (j) **Habitable room**SABS CC2.4
- (k) **Kitchen Canopy** (Cooking Hoods)..... NBR O1(3)(b), T1 & SABS 007.5 & 007.7
- (l) **Natural & ‘cross’ Ventilation** NBR O1(1), SABS 004 & 005
- (m) **Noise** (of fans and equipment and generators)NCR 4 & 5, NBR A15 & O1(1)
- (n) **Occupational Health & Safety Act** (Act No. 85/1993).....NBR O1(3)(b)
(flammable stores, spray-painting, dust extraction, warehouses, factories, etc.).
- (o) **Parking Garages** NBR O1(1) & SABS OO7.6(a) & (b)
- (p) **Partitions, walls** NBR A7(a), SABS CC2.4
- (q) **Plans** and particulars required (kindly colour new work on plans,
provide site plans, fan selection data, etc.)NBR A2, A4, A5 & A7
- (r) **Population density**NBR A20, A21
- (s) **Pressurisation** of stairwells
(Refer C.C.C letter ref. M-1-5.AAN) NBR T1(1) & SABS TT25
- (t) **Public WC’s**, darkrooms, dry-cleaning -
Supply air and exhaust systemsNBR O1(1), O1(3)(b) & SABS OO7.10
- (u) **Registered Professional Engineer** must certify the design
and provide full contact data, postal address, telephone numbers
and the E.C.S.A. registration number. (Please see pages 7 and 8)..... NBR A4(1)b & 8(b), O4
- (v) **Sauna baths** NBR O1(3)(b) & SABS OO7.4
- (w) **Smoke Control** (spaces exceeding 500m²)..... NBR T1(1) & SABS TT42
- (x) **Structural Engineer** requirements (eg. steel supports, mass in kG).....NBR B1
- (y) **Uniform** distribution of air and air movement..... NBR O1(1) & SABS OO7.9
- (z) **Use** (purpose of space – eg. bedroom, office, kitchen, warehouse, shop)NBR A7(d)
2. Please refer to the document entitled “Preparation of Building Plans ...” (form Cpbs 257) published by the Building Development Branch, 15th floor, Civic Centre. The relevant text reads as follows:
- “Where artificial ventilation (or air conditioning) is involved, the necessary details together with a Certificate of Appointment (of the duly authorised Registered Professional Engineer – A19 form – page 7 & 8) must be submitted with the Architect’s plans”**
- Such plans must be 4 sets of white paper prints not smaller than A4 and not larger than AO size.
 - Such plans shall be to **1:100 scale or 1:50 scale – Site plans shall be 1:200 scale.**
 - Such Appointment form (see Page 7 & 8), shall be binding on the **Owner** of the property, and
 - shall indicate that the project is being undertaken and supervised by such **Professional Engineer**,
 - such Engineer is responsible for the work required by the local authority.
3. Please indicate the intended use and the design population of all rooms based on NBR A20 AND NBR A21 (SABS: pages 33 to 35).
4. Where full height partitions / walls are erected in previously approved artificially ventilated spaces, kindly indicate the duly required design modifications to the existing systems, air volumes, etc.

5. Indicate the positions of all fire dampers.
6. Fire dampers must comply with SABS Code 0193 and must be installed wherever a duct penetrates a firewall or floor slab (refer to SABS Rule TT43.3 & TT6.1).
7. Show the installation details for these dampers. In the case of kitchen canopy extract systems, the ducting must be fire-proofed throughout (as fire dampers will tend to become jammed by deposits).
8. Indicate the mode of control for toilet and shower exhaust fan operation (eg. Timer or light switch to: The Director: Trading Services: Electricity Services Regulations).
9. Door grilles must be installed (or the doors undercut by 20mm) to all spaces served by artificial ventilation.
10. General Layout drawings must comprise plans, sections and elevations to describe fully, every part of the artificial ventilation and/or air conditioning systems.
11. The positions of section lines must be indicated on the plan views and all plans, elevations and sections must be fully dimensioned.
12. Kindly provide a **table** on the plans showing each room requiring artificial ventilation and/or air conditioning with the corresponding **floor areas, design population, fresh air supply and exhaust rates in litres per second** as indicated below:

Example:

Floor	Space	L x W	Area m ²	Rate P = person	Population density [NBR]	Air Cond. Fresh Air Exhaust	Minimum air volume required	Actual design air volume
Ground	Shop	5m x 20m	100 m ²	7.5 litres/sec/P	1p/10m ² = 10p	Fresh air	75 litres/sec	100 litres/sec
First	Toilets	3 wc, 1 sh 2 whb	16m ²	25litres/sec. per sanitary fitting	n/a	Exhaust 4 x 25l/s	100 litres/sec	150 litres/sec
2 nd floor	Restaurant	10m x 15m	150m ²	7.5 litres/sec/P	1p/m ² =150p	Fresh air @ 7.5 l/s	1125 litres/sec	1240 litres/sec
Ditto	Kitchen	10m x 4m	40m ²	17.5 litres/sec/P	1p/4m ² =10P [C of C T]	Fresh air	175 litres/sec	200 litres/sec
Ditto	Ditto but "Make-up"	Consult plan examiner *	*	*	n/a	Fresh air	+/- 80% of canopy rate – see below	*
Ditto	Canopy over cooking eqp'mt	L x W canopy @ face	Add 150mm over hang	0,5 m/sec x area m ²	n/a	Exhaust	*	*
3 rd floor	Factory (all Industries)	20m x 40m	800m ² #	7.5 litres/sec/P	1P/15m ² =54p	Fresh air	405 litres/sec	450 litres/sec
3 rd floor	Warehouse storage	20m x 30m	600m ² #	7.5 litres/sec/P	1P/50m ² =12p	Fresh air	90 litres/sec	120 litres/sec
Ground	Parking – 32 bays	20m x 40m	800m ² #	7.5 litres/sec/P	n/a (Table 2)	Fresh air and Exhaust air	Fresh air: 6000 litres/sec	Exhaust air: 6300 litres/sec

= denotes that space requires specialist Smoke Control [NBR] Reg TT42 as well

* = denotes – consult Plans Examiner

- 13. Indicate the positions, materials, sizes of ducting and all diffusers, grilles and weather louvres.
- 14. Please refer to Council drawings of typical installations (available on request) for examples of the preferred arrangements that should be shown on your drawings.
- 15. The artificial ventilation &/or air conditioning plans must correspond exactly with the architectural plans received at the date of formal plan submission in all respects.
- 16. Please note: only ONE fan system and discharge is permitted per restaurant kitchen.
- 17. Other remarks:

Plans may be submitted in person to the offices of the:-

Building Control Officer for the
Building Development Management,
Executive Director: Strategy & Planning department,
at your local municipal offices.

with the prescribed application forms IN DUPLICATE and must be SIGNED by the registered owner of the property together with his IDENTITY NUMBER and with a full POSTAL ADDRESS, TELEPHONE, FAX, CELLPHONE NUMBERS, etc. *(duly completed by a registered architectural professional)* [see "S.A. COUNCIL for the ARCHITECTURAL PROFESSION" – Website: www.sacapsa.com]. and upon payment of a plan approval scrutiny fee.

Office hours are Mondays to Fridays: 8:30am to 12:30pm.
Telephone enquiries: (021) 400-6496.

for **EXECUTIVE DIRECTOR: CITY HEALTH**

NOISE CONTROL:

- (A) Show the position and noise levels of all fans and ancillary equipment (including generators) in **Decibels [dBA]** (free field levels measured at a distance of three (3) metres from such equipment). Kindly indicate the make, model, size, speed and type of every fan.
- (B) Artificial ventilation systems (and generators) must not emit a noise, the level of which causes the ambient to exceed 50 dBA measured at the boundary of the property concerned.
- (C) If the possibility exists of a **noise nuisance** being generated on the property then a **Noise Impact Assessment Report** {in terms of [NCR] Regulation 2(d)} may be required.
- (D) If an area is designated as a discotheque, night club or any other area where noisy activities are likely to occur, your attention is invited to [NCR] Regulation 3(c) which requires that “**precautionary measures**” to prevent noise nuisance must be taken to the satisfaction of the local authority. The details of these must be indicated on “suitably detailed plans”.
- (E) In order to enable sound-proofing of the premises to be designed, you are requested to adopt a design sound level of **120 [dBA]** inside the premises and achieve no more than 45 [dBA] at the external boundaries of the property.

In such circumstances, a letter of guarantee and a “**Noise Impact Assessment Report**”, in terms of [NCR] Regulation 2(d), signed by a recognised Acoustic Engineer / Consultant, which shall embrace the above acoustic criteria and take cognisance of the full dynamic audio spectrum (including bass note attenuation), shall be forwarded **together with suitably detailed plans (both architectural and engineering)** to the Executive Director: Planning and Economic Development before approval of the plans can be considered.

- (F) Please note further, that premises described above, may, in addition, require:
- a **zoning departure**,
 - Heritage Council assessment,
 - **consent of neighbours**,
 - **proof of a business licence application**, and also, that
 - the granting of an **occupation certificate** is un-encumbered,

before the approval of the plans may be completed.

KITCHEN CANOPY EXHAUST SYSTEMS

- (a) Indicate the dimensions of canopies and the heights above floor level. **Show sections through such canopy to indicate filtration details** (canopies should be 150mm larger than the cooking appliances served and at least 2.1 metre from underside to floor level). Only one fan and canopy exhaust system per restaurant kitchen is permitted.
- (b) Readily removable **access** panels for cleaning and inspection must be indicated at regular intervals and at each change in duct direction.
- (c) Indicate the exhaust rates, (at least 0.5 m/s over face of canopy), positions, make, model, sizes and type of grease removing **filter devices** to be installed in the kitchen canopies (approved activated-carbon filters and/or scrubbers may be necessary in applications where a nuisance may be caused).
- (d) Kitchen canopy exhaust systems shall not contain sound attenuators unless:
 - such attenuators have been favourably evaluated by the SABS as being suitable for such application; and
 - they cannot accumulate grease or other condensate.
- (e) Indicate the heights of **the points of discharge**, which shall be not less than 1 metre above the eaves of a flat roof or higher if the roof is of the pitched type.
- (f) The effect of the **discharge plume** on all surrounding buildings, fresh air intake positions and the **topography** of the area must be taken into account in assessing the heights and locations of points of discharge.
- (g) It is recommended that kitchen exhaust discharge vertically upwards [NBR] V1.
- (h) If any risk attaches to Kitchen Canopy exhaust systems, then a “Rational Design” may be required in terms of [NBR] Regulation T1(2).
- (i) The relevant inspector for the site reserves the right to call for additional “Make up” air volume (depending on the site conditions) to compensate for excess heat experienced by kitchen staff. Therefore, please consult the plan examiner for a ruling before completing the designs.
- (j) “Tea Kitchens” should have an exhaust system capable of exhausting at least 50 litres per second of air each and shall be separate from toilet and similar air systems.

NATIONAL BUILDING REGULATIONS
APPOINTMENT FORM FOR REGISTERED PERSON (A19).

To: **BUILDING CONTROL OFFICER**
CITY OF CAPE TOWN

Card No.: _____

Description of Project _____
 Erf/Holding/Portion No.: _____
 Township/Agricultural Holding/Farm Name: _____
 Street Address: _____

SECTION 1: DECLARATION BY OWNER(S).

*I/We _____ (Name of owner)

of _____ (company)

Telephone No.: _____ Facsimile: _____

hereby confirm that *I/We have appointed _____ (Name of appointed person)

in terms of Regulations * A19(1)/A19(2) as the Registered Person for the work, duties and responsibilities set out over, and *I/We understand and accept that the onus is on * me/us to:

- (I) inform the Registered Person when the work is due to start on site, and
- (ii) notify the local authority in writing should the appointment be terminated before the work for which this person was appointed, is completed, and if considered necessary by the local authority to make another appointment.

Signature of Owner(s): _____ Date: _____

SECTION 2: UNDERTAKING BY REGISTERED PERSON

I, _____ (Name in Block Letters)

of _____ (Address in Block Letters)

Telephone No.: _____ Facsimile No.: _____

undertake and accept full responsibility for:-

- (I) the rational **design** in respect of the above project for the applicable work described over, and for **inspection of the work during construction/installation** at intervals in accordance with accepted professional practice to check compliance with the approved design;
- (ii) **providing the local authority with such drawings, details and particulars as are, and may be, required by these regulations,**
- (iii) providing the local authority with a full list of my academic qualifications and relevant experience when called upon to do so in terms of Regulation A19(3).
- (iv) notifying the local authority in writing should:
 - (a) it appear that any work is being carried out in a manner which may endanger the strength, stability and serviceability of the building or any adjoining building, structure or property,
 - (b) my appointment be terminated before the work for which I was appointed is complete, and
- (v) submitting to the local authority on completion of the work contemplated in Section 4(b) and (I), a certificate in terms of Section 14(2A) of the National Building Regulations and Building Standards Act, No. 103 (1977).

 Signature

 Professional Registration Number

 Date

* *Delete where inapplicable***SECTION 3: DESCRIPTION OF APPLICABLE WORK**

	Regulation No(s)	Signatures
(a) Precautionary measures to ensure the stability of any excavation, adjoining property, etc.	G1	Registered Person _____ Owner
(b) Structural System including fire stability	B1 & A1(3)	Registered Person _____ Owner
(c) Artificial Ventilation System	O4	Registered Person _____ Owner
(d) Drainage Installation	P2	Registered Person _____ Owner
(e) Stormwater Disposal System	R1	Registered Person _____ Owner
(f) Fire Protection System	T1	Registered Person _____ Owner
(g) Fire Installation System	W4	Registered Person _____ Owner
(h) Building on Unstable Ground	F3(2) & F3(3)	Registered Person _____ Owner
(l) Structural System - Temporary Building with Public Access	A23(4)	Registered Person _____ Owner

SECTION 4: INFORMATION OF REGISTERED PERSON

(a) Details of Professional Registration with E.C.S.A.:

Registered as:	Registration Number:

Guidelines for the design of designated Smoke Areas and Smoke Rooms

Information Document

Date: 2008-02-28

The objective is to supply fresh air, to extract smoke from a smoke area or smoke room in order to maintain a negative pressure in such smoke area or smoke room (so that air is prevented from passing back into the building) and to supply the necessary signage, in accordance with the NBR and the Tobacco Products Control Amendment Act.

Explanatory note:

SMOKING ROOM: In terms of the NBR, a smoking room is a dedicated room for smoking purposes only.

SMOKING AREA: In terms of the Tobacco Products Control Amendment Act, a smoking area is an area that is partitioned off with a solid partition and door and may not exceed 25% of the total floor area of the public place.

Guidelines:

1. Smoking areas must be separated by a solid partition with a self-closing entrance door on which a sign "SMOKING AREA" is displayed, written in black letters, at least 2cm in height and 1.5cm in width, on a white background.
2. The message: "SMOKING OF TOBACCO PRODUCTS IS HARMFUL TO YOUR HEALTH AND TO THE HEALTH OF CHILDREN, PREGNANT OR BREASTFEEDING WOMEN AND NON-SMOKERS. FOR HELP TO QUIT, PHONE (011) 720-3145" to be displayed at the entrance to the designated smoking area (or smoking room), written in black letters, at least 2cm in height and 1.5cm in width, on a white background.
3. Notices and signs indicating areas where smoking is permitted and where it is not permitted must be permanently displayed and signs indicating that smoking is not permitted must carry the warning: "ANY PERSON WHO FAILS TO COMPLY WITH THIS NOTICE SHALL BE PROSECUTED AND MAY BE LIABLE TO A FINE".
4. Artificial ventilation that serves the smoking area (or smoking room) must comply with the following:
 - Maximum occupancy rate must be 1 person per m² or the number of seats.
 - **7.5 l/s** minimum fresh air supply required per person in a smoking area and **20 l/s** minimum fresh air supply per person in a smoking room.
 - The rate of extraction must exceed the rate of supply, to such an area (or room), that a negative pressure will be maintained (i.e. air will not pass back into the building). Such extract air must be discharged to the outside atmosphere without causing a nuisance.
 - **Example 1:** When a smoking area (or room), has an external wall, fresh air may be introduced via opening windows, but the smoke must be extracted by a separate extract system. A Certificate of Compliance must be submitted by a Registered Person. No plans are required, unless structural changes are proposed or a ducted system is installed.
 - **Example 2:** When a smoking area (or room), does not have an external wall, fresh air may be introduced from an existing, if any, supply air system. However, such an existing system, must not be used to extract air from such a room (i.e. any return air terminals to be blanked off). A separate extract system must be installed.
 - **Example 3:** When a smoking area (or room), does not have an external wall, and where no artificial ventilation system exists, fresh air must be supplied by means of an artificial ventilation system. A separate extract system must be installed.

Note (i): Except for Example 1, **building and ventilation plans must be submitted to Council, for approval.** Such plans must be certified by a Registered Person as contemplated in terms of the National Building Regulations and Building Standards Act before any work commences.

Note (ii): In any space described as public assembly occupancy, the escapes route must not be compromised by the provision of a smoking room or smoking area.

Note (iii): A smoke room or area, capable of a population density of 25 or more persons will be required to have a minimum of two (2) separate fire escape routes.

For more information, please contact:

Western Sub-District:	443-7126	Mitchells Plein Sub-District:	392-8111
Eastern Sub-District:	900-1528	Tygerberg Sub-District:	938-8278
Southern Sub-District:	710-8092	Northern Sub-District:	980-1342
Klipfontein Sub-District:	633-2010	Khayalitsha Sub-District:	363-2505