BORANG AS 16 D-3
FORM AS 16 D-3

PERMOHONAN KELULUSAN MEMASANG, MENEMPATKAN SEMULA/MENGUBAH ALAT KAWALAN PENCEMARAN UDARA (PENAPIS BEG DAN CEROBONG) DI BAWAH PERATURAN 38, PERATURAN-PERATURAN KUALITI ALAM SEKELILING (UDARA BERSIH), 1978

APPLICATION FOR APPROVAL TO INSTALL/RESITE/ALTER AIR POLLUTION CONTROL EQUIPMENT (BAG FILTER AND CHIMNEY) UNDER REGULATION 38 OF THE ENVIRONMENTAL QUALITY (CLEAN AIR) REGULATIONS, 1978

Sila kemukakan borang yang telah lengkap diisi
ke pejabat Jabatan Alam Sekitar Negeri di mana projek/premis ini ditempatkan.
Please submit completed form to the Department of Environment State Office where the project/premise is located

JABATAN ALAM SEKITAR
KEMENTERIAN SUMBER ASLI DAN ALAM SEKITAR
DEPARTMENT OF ENVIRONMENT
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

APPLICATION FORM FOR AIR POLLUTION CONTROL EQUIPMENT INSTALLATION- BAG FILTER

FOR OFFICE USE ONLY		
RECORD NO:	**DATE**	**SIGNITURE**

Attention.

- **Please fill in the form clearly or type. One form for each control equipment.**
- **Forms and all relevant information must be bound before submitting to the Department**

A. GENERAL INFORMATION

1. Name and address of applicant _____ _____ _____	2. Name and address of consultant _____ _____ _____
3. Contact person _____	4. Contact person _____
5. Telephone no.: _____ Fax no.: _____	6. Telephone no.: _____ Fax no.: _____
7. Installation address (if different from above) _____ _____ _____	8. Type of manufacturing facility. _____ _____ _____
9. Names of public facilities such as school, clinic, hospital etc. within 300 metre radius from the location of proposed bag filter . _____	

B. SOLID PARTICULATE EMISSION STREAM DATA

10. Type of particulate : _____
(general description)

11. Emission Standard*: _____ g/Nm^3

12. Characteristic of gas stream/dust

☐ Wet ☐ Oily ☐ Adhesive ☐ Corrosive ☐ Abrasive

☐ Tacky ☐ Acidic ☐ Alkaline ☐ Others (please specify) _____

Gas stream dew point _____ ^{o}C

Temperature of gas stream _____ ^{o}C

Gaseous contaminants in the gas stream if any. Please describe _____

* Refer to emission standard under the Environmental Quality (Clean Air) Regulations, 1978

13. Sources of solid particulate (attach manufacturing process flow chart and highlight the generating points in the process).

List all machineries and the other infrastructure emitting dust that will be controlled by the bag filter as designed in Section C to G.

Item No.	Description of machine	Dimension / Capacity	Manufacturer	Note

C.

DESIGN OF DUST EXTRACTION SYSTEM

14 Using separate attachment provide a complete design calculation of dust extraction system by referring to American Conference of Governmental Industrial Hygienists (ACGIH) or other source of reference. Provide a summary of details of dust extraction system as required in para i - vi

i.) Volume flow trough main duct _____(m^3/s)	ii.) Estimated temperature of the air at the inlet of the bag filter _____(^oC)
iii.) Total pressure loss through duct _____(kPa/mmWG)	iv.) Total pressure loss through bag filter _____(kPa/mmWG)
v.) Total pressure loss through stack _____(kPa/mmWG)	vi.) Total system pressure loss _____(kPa/mmWG)

15. Material of duct construction :_____

Attach building layout and elevation plan showing location of hood, blower, extraction system, bag filter and other control equipment

Title _____ Reference no._____

D.

FAN DATA

Please compute for fan details. Attach catalogue and fan performance curve. Use extra sheets if more than one fan is used.

16. Type of fan: ☐ Centrifugal (radial flow) ☐ Axial-flow (propeller) ☐ Others	17. Manufacturer: _____	18 Fan model No: _____
19. Capacity at temperature of operation _____ (m^3/s or cfm) _____ ^oC	20. Fan speed: _____ rpm	21 Static pressure: _____ mm WG

22. Blade type ☐ Foward curve ☐ Backward curve ☐ Straight ☐ Propeller ☐ Tube Axial ☐ Vane axial	23. Blade diameter: _____ cm	24. Blade width: _____ cm
25 Inlet duct size: _____ cm	26. Outlet duct size: _____ cm	27 Fan Power:: _____ KW
28 Absorbed Power: _____ KW		

E **MOTOR DATA**

29. Motor output: _____hp/kw	30. Motor speed: _____ rpm	31. Speed ratio: _____
32. Manufacturer: _____	33. Motor model No: _____ _____	

F. **CHIMNEY DESIGN**

34. Chimney height: _____ m	35. Height of tallest building.:* _____ m	36. Efflux velocity ** _____ m/s
37. *** Chimney identification Number (refer to existing chimney) _____	38 Diameter at the outlet: _____ m	39. Material of construction: _____

* Building within 50-metre radius
** Perform calculation
*** Refer to existing chimney number, use the next number.

40. Attach drawings showing the construction details of chimney, flue gas sampling point and the necessary safe access leading to the sampling point including the sampling platform. Please refer to Malaysian Standard MS 1596:2003 'Determination of Concentration and Mass Flow of Particulate Matter in Flue Gas for Stationary Sources Emission' to determine the suitable sampling locations.

Title _____ Reference no:. _____

G. **BAG FILTER DESIGN**

Attach detailed design calculation. Provide a summary of bag filter details as required in para 41 – 46

41. Bag house type. Check wherever relevant

☐ Pulse jet ☐ Reverse jet

☐ Shaker ☐ Sonic horns ☐ Others. Please specify _____

☐ Positive pressure ☐ Negative pressure

42. Bag house design. Fill in wherever relevant

Generic name of filter cloth: _____ Commercial name of filter cloth: _____

Manufacturer of filter cloth _____

Filter thermal stability: _____ ^{o}C, (Maximum temperature)

Chemical resistance of filter (please describe) _____

Diameter of filter cloth: _____mm Length of filter cloth _____m

Total filter area provided: _____ m^2

Number of bags: _____

Filtration velocity: _____ m/s

Can velocity: _____ m/s

Bag spacing: _____mm

Range of working pressure from _____ mm WG to _____mm WG

Bag cleaning frequency. Every _____ min for _____ sec

Number of compartments _____

43. Monitoring and indicating devices. Check wherever relevant

	Device	Purpose
☐	Pilot lights	to show motors operating, compartment on or off line, row of bags being pulsed
☐	Manometer or magnehelic gauges and recorder	to determine pressure drop at various points in the bag house
☐	temperature indicators	to determine temperature at critical points in the bag house
☐	gas flow meters	to measure actual gas flow rate through bag house
☐	fan current, fan bearing temperature and the fan vibrator indicators	to identify early warning sign indicating maintenance to the fan
☐	Magnehelic gauge	to determine pressure of compressed air supply line for pulse jet
☐	Bag leak detection system If checked specify type _____	to monitor if bags develop leak
☐	Explosion relief vents	to protect dust collector and for safety reason

44 Dust storage and disposal

(i) Give description and attach a drawing of the system to handle the collected dust

_____

(ii) Hopper equipped with dust level sensor? ☐ Yes ☐ No

(iii) Dust removal from hopper

☐ Continuous. Describe method _____

☐ Manual. Describe method _____

(iv) Final disposal of collected dust. Please describe

_____

45 ** Dust collector efficiency _____%
** Supply data to substantiate

46. Estimated particulate concentration discharged at the outlet of the chimney. Attach relevant calculation

_____ g/NM^3

47 Drawings and information to be submitted together with application form.

i) Location plan showing dust collector and chimney within the radius of 250 metre to 1000 metre from proposed chimney

ii) Building layout and elevation plan showing location of the dust collector and ventilation system

iii) #Engineering drawings (including plan and side view) of bag filter as well as location of performance monitoring equipment (eg. Pilot lights; manometer, magnehelic gauges and recorder; temperature, gas flow meters, fan current, fan bearing temperature, and fan vibrator indicators; bag leak detection system; explosion relief vents), flue gas sampling point and the necessary safe access leading to the sampling point including the sampling platform and chimney.

iv) Relevant manufacturing process flow diagram.

v) Fan and motor catalogues.

All plans and engineering drawings should be in A1 size and certified by professional engineer.

H. PERFORMANCE MONITORING PROGRAMME FOR BAG FILTER

48 Describe location of pressure gauges, temperature sensors, gas flow meters and other instruments installed for the purpose of operation and performance monitoring. Attach piping and instrumentation drawing.

_____

_____

49 Submit using attachment detailed proposal on performance monitoring programme for the bag filter and operation and maintenance programme. Please refer to the document entitled 'Technical Guidance Document Series No. ….. Performance Monitoring of Air Pollution Control Systems' issued by DOE for guidance.

I. DECLARATION

I …….. the applicant/authorised agent* of the applicant, hereby declare that all the information given in this application is to the best of my knowledge and belief true and correct.

Date; _____ Signature of applicant/*****_____
Authorised agent

Telephone No.: _____ Full Name: _____

Identity card no.: _____

Fax No: _____ Designation: _____

Official Stamp of the Company: _____

For and on behalf of: : _____
_____
_____

Telephone No.: _____ Fax No.: _____

***** Delete whichever is not applicable