Annotated bibliography on exhaust hoods

Beach, R. K.

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ANNOTATED BIBLIOGRAPHY
ON
EXHAUST HOODS

compiled by

R. K. Beach

The items contained in this annotated bibliography are for the most part the result of a scrutiny of the Engineering Index, Applied Science and Technology Index, British Technology Index, and Heating and Ventilating Research Association Library Bulletin, of volumes from 1959 to date. Three books pertaining to the subject are also listed.

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BOOKS

INDUSTRIAL VENTILATION MANUAL - (A Manual of Recommended Practice, 7th Edition, Committee on Industrial Ventilation). American Conference of Governmental Industrial Hygienists P.O. Box 453, Lansing, Michigan. 1962

PLANT AND PROCESS VENTILATION. W.C.L. Hameon. The Industrial Press, New York 13, N.Y. 1955

DESIGN OF INDUSTRIAL EXHAUST SYSTEMS. J.L. Alder. Industrial Press, New York. 1948

ARTICLES

SPECIAL EXHAUST SYSTEM CONTROLS PLANTS CORROSIVE ATMOSPHERE. S.L. Lucas. Plant Engineering, Vol. 17, No. 6, June 1963, p. 144-5

Ventilating system employed at the plant of Western Electric Co., Winston-Salem, N.C., to solve problems in conjunction with use of various acids in process, condition air to be exhausted, and elimination of air pollution; features of series of laboratory-type hooded enclosures to carry corrosive atmosphere up to exhaust duct where it is discharged.

DESIGN OF EXHAUST SYSTEMS AND DISCHARGE STACKS. J.H. Clarke. Heating, Piping & Air-Conditioning, Vol. 35, No. 5, May 1963, p. 119-23

Considerations for removing building contaminants safely and discharging them to outside with minimal air pollution and nuisance; industrial ventilation design criteria to provide necessary exhaust systems for safe removal of contaminants; examples of discharge stack design.

(Discussion HP and AC, Vol. 35, p. 78; Reply p. 86, August 1963)

LABORATORY AIR SUPPLY SYSTEMS. R.J. Walker, ASHRAE Journal, Vol. 5, No. 3, March 1963, p. 47-8

Fresh air supply system criteria for selecting ventilation system for laboratory; analysis of system components and operating costs; criteria indicate heavy duty, built-up type of system as opposed to prefabricated units.

LABORATORY FUME HOODS AND THEIR EXHAUST SYSTEMS. J.E. Peterson and J.A. Peay. Air-Conditioning, Heating and Ventilating, Vol. 60, No. 5, May 1963, p. 63-72

Considerations associated with selection of laboratory hood; problem of hood desig and location in laboratory; exhaust hood system components, inspection and balancing of new installations, and preventive maintenance are discussed.

ENGINEERING APPROACH TO DESIGN OF INDUSTRIAL MAKE-UP AIR SYSTEMS. W.L. Wilson, Air Engineering, Vol. 4, No. 12, December 1962, p. 30-6

Supply air jets and methods for estimating size and velocity of jet streams; principles as related to design of various types of industrial ventilation, including heating, hot air dissipation, dilution, ventilation, contamination at floor level, make-up air for local exhaust hoods and push-pull systems.

DESIGN OF PHARMACEUTICAL LABORATORY. R.C. de B. Devereux and R. Charlton. Inst. Heating and Ventilating Engineers Journal, Vol. 30, May 1962, p. 45-59

Experience based on expansion program carried out by Wellcome Foundation Ltd., Beckenham Kent research centre; buildings provide special facilities for production of polio and other virus vaccines, development and production of anaerobic vaccines, immunological research and pharmacology; design of heating and ventilation systems for laboratories concerned with biological work. Includes discussion and replies to discussion.

DESIGN TECHNIQUES FOR VENTILATING RESEARCH LABS. J.C. Barrett. Air Engineering, Vol. 4, No. 1, January 1962, p. 31-6

Hood design and location, capture velocity, air supply, air cleaning, exhaust duct design, etc., for modern research laboratories handling materials of high toxicity and radioisotopes requiring additional ventilation; advantages of glove boxes, being small in size for work with radioisotopes and bacteria.

FUME HOODS - SAFETY VS COST. E.L. Walls and W.P. Metzner. Industrial and Engineering Chem. Vol. 54, No. 4, April 1962, p. 42-5

Development of hoods for Monsanto Chemical Company's new Research Centre at Creve Coeur, Mo.; major innovations are use of horizontal sliding sash instead of conventional rising sash, and making air flow through hood at all times; hoods cost little more than conventional equipment.

VENTILATION OF CHEMISTRY "HOT" LABORATORY. B.F. Oswals and S.J. Vachta. Heating, Vol. 24 No. 198, June 1963, p. 192-4

Design requirements for ventilating system in new section of Chemistry Building under construction at Argonne National Laboratory, Argonne, Ill.; problems of ventilation in connection with emitted alpha particles and to prevent spread of radioactive contamination.

LAB HOODS RID FUMES, EXHAUST BUILDING IN NEW LIFE SCIENCES RESEARCH CENTRE. C.J. Allen. Heating, Piping & Air Conditioning, Vol. 34, November 1962, p. 107-12

A brief detailed description of the laboratory exhaust hood system which is the basic building exhaust system; also describes reverse return H.W. heating system, absorption A.C. system, air-handling system, cold rooms and fire protection system; building is located at Wayne State University in mid-town Detroit.

VENTILATION OF MATERIAL TRANSFER. W.V. Andresen, Air Engineering, Vol. 3, No. 6, June 1961, p. 29-41

Data on ventilation requirements of hooded transfer points where toxic solid materials are added to chemical process stream; hood enclosures for dust control.

VENTILATION OF BASKET CENTRIFUGAL FILTERS.
W.V. Andresen. Air Engineering, Vol. 3, No. 4, April 1961, p. 31-2, 50

Practical suggestions to protect operator from hazardous vapours and solids during charging, washing and unloading cycles of basket centrifugal filters, hood design and exhaust ventilation data.

DESIGN FACTORS IN BETTER LABORATORY HOOD DESIGN.
ASHRAE Journal, Vol. 3, No. 9, September 1961, p. 47-50
J.C. Burke Jr., p. 47-9. What Primary Requirements are Needed in Controlling Contamination Through Ventilation?
T.B. Lanalon, p. 49-50. Laboratory Hood Size, Material and Construction Features are Based on Specific Application.

GUIDE TO INDUSTRIAL VENTILATION IN CHEMICAL INDUSTRY.
W.V. Andresen. Air Engineering, Vol. 2, No. 12, December 1960, p. 37-9; Vol. 3, No. 1, January 1961, p. 31-3

December 1960: Navy hood and open tee types of ventilation may be used where relatively small exhaust air volumes are required to control dust, gases, mists and vapours evolved from chemical process equipment, or from bins, weigh hoppers or similar equipment into which solids are charged; some type of ventilation can also be used for control in bucket elevator operations; design arrangements, and ductwork installations.

January 1961: Discussions of avenues of exposure of personnel to gases, mists and vapours evolved during plate and frame filter press operation; two methods of draining filtrate from press are "open" and "closed" delivery; canopy hood design for solvent control during press cleaning and setting up and minimum air volume of 1000 cfm should be used; additional ventilation may be required for container into which filtered product is transferred.

HOOD VENTILATION IN ARGONNE'S PLUTONIUM FUEL FABRICATION FACILITY. R.M. Mayfield and H. Bairiot. Heating, Piping & Air Conditioning, Vol. 33, p. 124-9, September 1961

During two years of operation the hood ventilation system has been modified considerably; the automatic control and purge system giving most concern.

EXHAUST HOODS FOR INDUSTRIAL VENTILATION. Air-Conditioning, Heating and Ventilating, Vol. 58, 1961, May, p. 87-8; June, p. 91-2

Two-page detail sheets and diagrams covering design of various exhaust hoods; (includes references giving procedure for determining ventilation rate).

ASHRAE SYMPOSIUM. Heating, Piping and Air Conditioning, Vol. 33, April 1961, p. 146-149.

How to Balance and Test Air Handling Systems to Assure Satisfactory Performance, James Bricker;

Field Testing of Industrial Exhaust Systems, R.E. Robinson;

Air Volume Control for Industrial Ventilation, R.J. Walker.

A brief report of three papers presented at the ASHRAE Symposium, Chicago, Ill., February 1961.

HOW MUCH HOOD EXHAUST AIR? Plot available data, chart supplies answer. H.L. Bryman. Plant Engineering, Vol. 15, April 1961, p. 105.

A nomograph for use with hoods over circular tanks.

PRACTICAL WAYS TO COLLECT BERYLLIUM DUST. A.J. Breslin and W.B. Harris. Air Engineering, Vol. 2, Nos. 7, 8, 9, 10, 1960. July, p. 34-653; August, p. 30-3, 51; September, p. 41-4; October, p. 48-50, 62, 64.

July: Three forms of disease associated with production and processing of Be; description of methods of control by enclosure techniques, air flow, exhaust ventilation, and hood design, gained by US AEC in 10 years of experience with machining, grinding, vacuum casting, sintering, fabrication, sublimation, chlorination, and other operations.

August: Exhaust ventilation design data for Be operations includes hooding for lathes, blenders, ball mills and rotating kilns.

September: Techniques for drum filling, ventilation, duct design, and collector selection methods.

October: Data on dust loading calculations, dust disposal, hood and duct sizing, principal features of dust collectors, and capital and operating cost figures on installations are discussed.

TECHNIQUES OF LABORATORY VENTILATION. J.C. Barrett. Safety Maintenance, Vol. 119, No. 1, January 1960, p. 28-32

Exhaust hood design and location; proper installation is vital with supply fan for system always located outside of building; need for minimum of 100 fpm face velocity for chemical and moderate toxicity material; proposed designs of hoods discussed.

HOW TO SELECT DUCTWORK, HOODS AND DUST COLLECTORS. H.E. Sadenberg. Engineering & Mining Journal, Vol. 161, June 1960, p. 195-9

Hood design and location for dust control of material handling equipment in mining industry; ductwork and characteristics of dust collectors and effect of condensation.

INDUSTRIAL EXHAUST SYSTEMS NEED MAKE UP AIR SUPPLY. G. Reznor. Heating, Piping & Air Conditioning, Vol. 32, October 1960, p. 146-8

The supply and distribution of make up air can be overlooked; broad requirements for make up air; its distribution, tempering and costs are outlined.

HPAC DATA SHEETS. C.F. Metzler. Heating, Piping & Air-Conditioning, Vol. 32, 1960.

Nomograph Is Short-Cut To Finding Exhaust Hood Air Flow Rates. HP and AC, June 1960, p. 161-2;

How To Determine Air Flow Through Half-Cylinder Exhaust Hoods. HP and AC, July 1960, p. 123-4;

How To Determine Air Flow Through Quarter-Cylinder Exhaust Hoods. HP and AC, August 1960, p. 123-4.

SUPPLY MAKE UP AIR FOR PLANT EXHAUST WITHOUT ADDING TO HEATING COSTS. H.P. Kaulfuss. Heating, Piping & Air Conditioning, Vol. 32, June 1960, p. 132-5

Four systems for exhausting heat, gas, fumes from Caterpillar Tractor Company Foundry, Peoria, Ill., are described. Systems use 80% untempered outside air and 20% inside air; untempered air is supplied at hoods and helps control flow into exhaust hood.

TIPS FOR TESTING VENTILATION SYSTEMS. B.D. Bloomfield. Air Engineering, Vol. 1, 1959. No. 5, August, p. 46-9, 51; No. 6, September, p. 38-40

Objectives of testing industrial system; method of measurement of factors such as hood and face velocity, velocity pressure, static pressure, and flow rate; characteristics of heated thermocouple and thermometer anemometers, rotating vane anemometers, and pressure gauges; exhaust system evaluation; field test measurements.

VENTILATION FOR AMERICAN PLUTONIUM FABRICATING PLANT. Heating, Vol. 21, No. 165, September 1959, p. 280-4

Fuel fabrication facility at Argonne National Laboratory, Lemont, Ill., which comprises administration, technical and fabrication areas, is ventilated by humidity controlled air supplied by means of separate air-conditioning system; helium atmosphere is used in process enclosures to protect personnel from alpha particle contamination, fire and oxidation hazards; negative pressure cooling system is used for hooded enclosures.

HOW VENTILATION COSTS ARE CUT IN RADIOACTIVE AREAS. T.T. Porembski. Air-Conditioning, Heating & Ventilating, Vol. 56, No. 6, June 1959, p. 73-7

Fourteen methods employed in originating cost improvements applicable to design of new, and improvement of existing, ventilation systems at Knolls Atomic Power Laboratory, Schenectady, N.Y.; systems of equipment are described, with details of air flow, and change of method which has effected operating economies.

NEW TECHNIQUES IN LABORATORY VENTILATION. M.W. First. Air Engineering, Vol. 1, No. 5, August 1959, p. 27-31

Consideration of effective temperature control, humidity and motion of air to safeguard workers' health and control dust, fumes, vapours and gases; basic ventilation design step in determining nature and extent of contamination load; design and use of laboratory hood to confine air contamination; dispersion from laboratory hoods; radioisotope hoods; providing make up air; exhaust hood piping, economics.

SELECT STAINLESS STEEL PIPING, DUCTS FOR NEW PLUTONIUM FABRICATION FACILITY. Heating, Piping and Air Conditioning, Vol. 31, December 1959, p. 79-83

A description of the new Argonne National Laboratory near Chicago; describes Plutonium briefly; three types of exhaust systems using air or helium; fire warning system.

CONTROL OF CONTAMINANTS. P.J. Marshall, ASHRAE Journal, Vol. 1, November 1959, p. 60-2

Reasons for control; design criteria; treatment of effluent; examples of systems used in manufacture of pharmaceuticals and chemicals.

AN APPROACH TO A RATIONAL METHOD OF RECOMMENDING FACE VELOCITIES FOR LABORATORY HOODS. J.E. Peterson. American Ind. Hyg. Assoc. Journal, Vol. 24, August 1959, p. 259