

Facilities Standards & Guidelines

C.70 Hoods – Slotted, Downdraft, Laboratory, & Canopy

Revision 0

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Section 1 – Summary

- 1.1 The objective for providing design criteria for hoods is for guidance in standardizing the preferred ventilation airflows, added materials, and accessories for different types of hoods installed in the various campuses of BAE Systems.

Section 2 – Specific Design Requirements

2.1 General

- 2.1.1 All laboratory hoods, slotted hoods, downdraft, canopy, and associated fans shall comply with the manufacturer’s recommended guidelines for warranty and safety.
- 2.1.2 Ventilation requirements shall meet compliance with the ACGIH Ventilation Manual, ANSI/ASHRAE 110, and the Scientific Equipment and Furniture Association (SEFA) Recommended Practices for laboratory hoods.
- 2.1.3 Pre-test and Final Test and Balance reports by a certified Air Balancer are to be provided to BAE Systems. Final closeout will include balance reports by the Balancer and confirmation by the Safety, Health, and Environmental (SHE) point of contact for the project.
- 2.1.4 All hoods should have pressure ports every 3 duct diameters upstream from bends or changes in airflow.
- 2.1.5 Hoods shall **NOT** be specified with internal remote blowers.
- 2.1.6 Ductless hoods are **NOT** to be utilized, without prior approval from SHE and the Facilities departments.

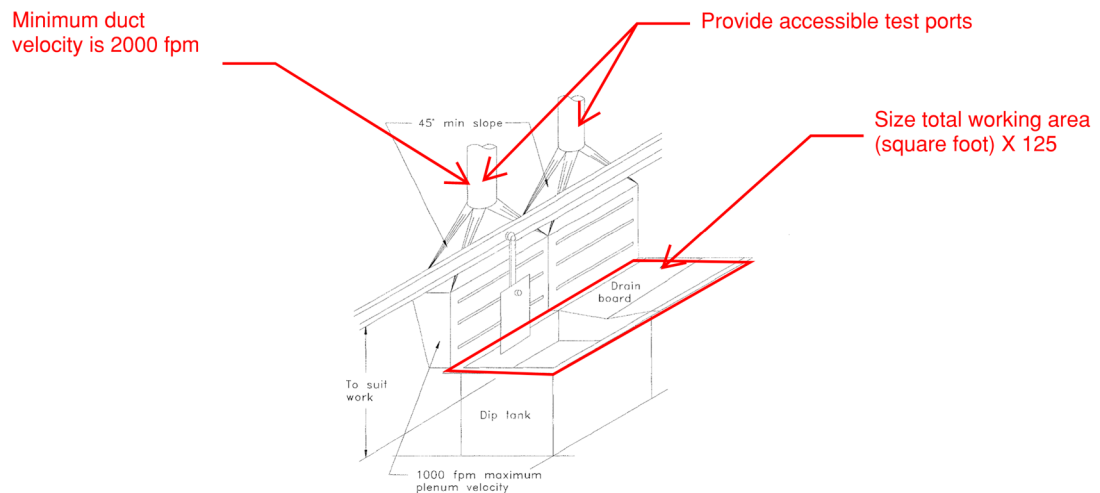
2.2 Laboratory Hoods

- 2.2.1 A laboratory hood is a box type of hood that partially or completely encloses air contamination, to contain and exhaust the air contaminants out of the space and building. A complete enclosure would be similar to a laboratory glove box where minimal openings exist. A partial enclosure would be a laboratory hood or paint spray booth. (*Industrial Ventilation*, ACGIH). Complete enclosures would be primary choice for processes with hazardous chemicals.
 - 2.2.1.1 The acceptable manufacturers are Labconco Protector Premier Laboratory Hood and Kewaunee Scientific Corporation Supreme Air.
 - 2.2.1.2 Include factory installed airflow monitors and low flow alarms.

- 2.2.1.3 All hoods should be controlled through safety activation mats with a timer shutoff after two hours or the user specified time frame, which satisfies the process time. Include mat status and fan status tied back to the Siemens Building Automation System.
- 2.2.1.4 The hood sash should be installed at an accessible height. The hood sash shall be opened 100% when balancing to achieve a face velocity of 100-120 feet per minute.
- 2.2.1.5 Ensure that there are accessible test ports or pressure taps in the ductwork for the certified air balancer and SHE point of contact for ventilation testing.

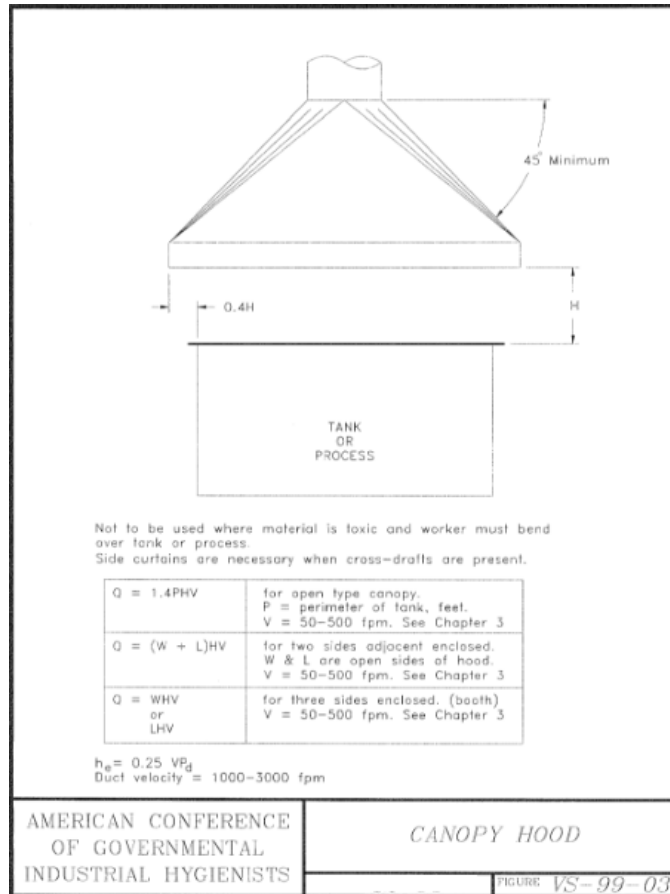
2.3 Slotted Exhaust Hoods

- 2.3.1 Slotted exhaust hoods such as paint mix and potting material are used to capture contaminants, typically from a tank or work surface, which are then exhausted away from the user and into the open exhaust slots. These are then tied to ductwork and an exhaust fan.
 - 2.3.1.1 Acceptable manufacturers include Kewaunee and Global Finishing Solutions.
 - 2.3.1.2 When sizing exhaust airflow rates for slotted hoods, size 125 cfm per square foot of the working area, drain board, or tank. Consult with the SHE department on slot hood design as some may require additional considerations such as push pull systems for a wide tank.
 - 2.3.1.2.1 Ensure that the maximum plenum velocity is 1000 feet per minute.
 - 2.3.1.2.2 Size the minimum duct velocity to be 2000 feet per minute.



2.4 Canopy Hoods

- 2.4.1 Canopy hoods are designed to collect and exhaust non-toxic materials only, heat, steam, and over non-hazardous processes such as ovens.
 - 2.4.1.1 Please size the canopy airflow based on the Industrial Ventilation Guide, depending on the canopy type such as circular high, rectangular high, and low canopy hoods.



2.5 Exhaust Fans

- 2.5.1 Exhaust fans are typically recommended to be tied to each hood for better exhaust controls. However, if similar hoods are tied to one piece of equipment, coordinate with SHE for chemical compatibility and the Facilities Engineer for adequately sized static pressure calculations.
- 2.5.1.1 Acceptable manufacturers are Greenheck and Cook for exhaust fan selections.
- 2.5.1.2 Ensure that the ductwork material is CPVC or aluminum depending on the applied process.
- 2.5.1.3 Fan material should be aluminum, explosion proof housing, and Spark C.
- 2.5.1.4 Provide fan with an ABB variable frequency drive, if applicable.

2.6 Activation Mats

- 2.6.1 The preferred activation mat is McMaster-Carr Model Number: 7666K26
- 2.6.2 Material: PVC Plastic
- 2.6.3 Dimensions: 36" (Width) x 72" (Length) x ½" (Thickness)
- 2.6.4 Color: Black
- 2.6.5 Coordinate power requirements with BAE users and Facilities Engineering.

Supplemental Document Information

The following resource documents should be referenced for execution of the standards and guidelines described above.

Document Number	Document Title
ACGIH Ventilation	ACGIH Ventilation Manual – Laboratory Hoods
ASHRAE 110	Methods of Testing Performance of Laboratory Hoods
SEFA	SEFA – Laboratory Fume Hoods
BPL – GL0000241	SHE Exhaust Ventilation Guide

Revision Log

Revision	Release Date	Description of Changes
0	08/01/2025	Initial Release