



Protector[®]

PASS-THROUGH LABORATORY HOODS



Protecting your
laboratory environment

LABCONCO[®]



Protector® Pass-Through Laboratory Hoods

Features & Benefits

With sashes on two sides, Protector Pass-Through Laboratory Hoods may be operated from either side while an audible sash alarm sounds to prevent simultaneous opening of both sashes. When mounted in an island or peninsular configuration, their unobstructed

viewing from either side make them ideal for conducting chemistry demonstrations or observing students using the hood. An optional side mounted viewing window further enhances visibility. These hoods may also be installed in the wall between two rooms.

Front and side panels may be easily removed for lamp replacement and access to sash weight and electrical supply connections.

Fluorescent lighting illuminates the interior. The high-efficiency, instant start, T8 fluorescent lights are located outside the hood interior for corrosion-resistance and easy replacement.

By-pass airflow design ensures relatively stable face velocities.

Durable and attractive exterior is glacier white powder-coated steel and aluminum.

Upper baffle directs airflow to the center of the interior to provide efficient airflow.

Optional color-coded service fixtures for gas, air, water, vacuum and other services have remote controls for use regardless of the sash position. On some models, two service fixtures are pre-plumbed. Each corner post is factory-prepared for up to 4 service fixtures (up to 8 fixtures total per hood).

Vertical-rising tempered safety glass sashes with cable pulleys provide maximum visibility.

Large 14.9" x 23.9", right or left-mounted tempered safety glass viewing window is included on some models and provides an additional observation vantage point.

Chemical-resistant, fiber-glass-reinforced composite panel interior sides surpass all national codes for flame spread and has a bright white surface for excellent light reflectivity.

Service access panels allow accessibility to plumbing from the front of the hood.

Pre-wired electrical components. Fluorescent lights, switches and GFCI electrical duplex receptacle (on fixtured models) are factory-wired to the hood's junction box.

Performance tested to ASHRAE 110.

CE Mark. Hoods for 230 volt operation conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.

ETL-listed. Hoods carry the ETL mark signifying that they are certified to UL 61010-1, UL 1805 and CAN/CSA C22.2 No. 61010.1.



* U.S. Patent No. 6,461,233

Eco-Foil™ air foil with Clean-Sweep™ openings reduces energy consumption by 7-10% compared to flat air foils while its aerodynamic curve allows air to sweep the work surface for maximum containment.

Clean-Sweep™ sash handles and tracks. The powder-coated aluminum sash handle includes Clean-Sweep openings to bleed air into the hood chamber and away from the operator's breathing zone. Clean-Sweep slots on the sash tracks of the corner posts enhance airflow.

Large unobstructed sightline provides visibility of 37.5" high from the work surface to the header panel, allowing taller users comfortable viewing while standing.

Sash stops included. One sash stop is provided for each side to restrict sash opening height to 25" (63.5 cm) for optimal airflow. The sash stops may be defeated to raise the sash to maximum 28" (71.1 cm) height for loading and unloading only.

Audible sash alarm alerts the operator to unsafe conditions. The alarm sounds when both sashes are opened simultaneously and continues until one sash is completely closed.

Cord-Keeper™ slots on the left and right side of the air foil allow the sash to close completely when electrical cords from equipment inside the hood are plugged into



receptacles located on the corner posts. Cords are kept out of the way of the operator.

 Exclusive Feature



Protector® Pass-Through Laboratory Hoods

Specifications



Protector Pass-Through Laboratory Hood 113608002 is shown with SpillStopper Work Surface 9570600 and Protector Acid Storage Cabinets 9901100. Blower, ductwork, work surface and base cabinet(s) must be ordered separately.

All models feature:

- By-pass airflow design and by-pass blocks, one for each sash.
- Glacier white powder-coated steel and aluminum exterior.
- Powder-coated steel Eco-Foil™ air foil with Clean-Sweep™ airflow openings.*
- Cord-Keeper™ slots on left and right side of air foil.
- Chemical-resistant molded composite panel interior sides and pre-set baffle with flame spread less than 25 per ASTM E-84.
- Powder-coated aluminum sash handle with Clean-Sweep™ openings and Clean-Sweep™ slots on the powder-coated steel sash tracks.*
- Two tempered safety glass vertical-rising sashes with cable pulleys and sash stops mounted at 25" (63.5 cm) opening height.
- 37.5" (95.3 cm) high sightline from the work surface to the header panel.
- Audible alarm that sounds when both sashes are open at the same time.
- Removable front and side panels and front access panels for access to plumbing and electrical wiring.

- Pre-wired T8 fluorescent lighting with vapor-proof design, one on each side and ADA-compliant light and blower switches on the front side.
- Factory prepared for up to eight service fixtures, four on each side.
- Powder-coated stainless steel 12.81" ID exhaust connection

All models conform to the following standards:

- CFR 29, Part 1910 • SEFA 1 • CE (230 volt models)
- SEFA 8, Cabinet Surface Finish Tests • NFPA 45
- ASTM E84-09C • ASHRAE 110-95 • ANSI Z9.5
- CAN/CSA C22.2 No. 61010.1 • UL 61010-1 • UL 1805

Fixture models may feature:

- Two pre-plumbed service fixtures with forged brass valves with brass tubing for gas and copper tubing for cold water. Components for converting either or both fixtures to air or vacuum are provided. **Inlet tubing is not provided.**
- One pre-wired GFCI electrical duplex receptacle on lower right side.

Side window models feature:

- Right or left side-mounted tempered safety glass window, 14.9" x 23.9" (37.8 x 60.7 cm)

Required accessories not included:

- Remote blower • Ductwork
- Work surface • Base cabinet or stand

Optional accessories for on-site installation include:

- Service Fixture Kits • Electrical Duplex Kits
- Guardian Airflow Monitor Kits • Sash Stop Kits

Total Exhaust CFM and Static Pressure

Face Velocity (fpm)		Airflow Volumetric Rate (CFM) @ Static Pressure (inches of water)					
1 Sash @ Full Open (25" to sash stop)**	1 Sash @ 62.5% Open (18")†	4' Hood CFM s.p.		5' Hood CFM s.p.		6' Hood CFM s.p.	
100	130	775	0.33	1020	0.42	1250	0.59
NA	100	590	0.19	775	0.24	950	0.34
NA	80	470	0.12	620	0.15	760	0.22
NA	60	355	0.07	465	0.09	570	0.12

Contact Labconco at **800-821-5525** or **816-333-8811** for ordering information on blowers, ductwork, base cabinets, base stands and other accessories and for blower sizing assistance.

* U.S. Patent No. 6,461,233

** 25" opening height from sash to work surface.

† 18" opening height from sash to work surface. Additional sash stops required. See page 7.

Exclusive Feature

Heights of switches, electrical receptacle and service fixtures meet requirements of Americans with Disabilities Act (ADA).



Ordering Information & Dimensional Data

Protector® Pass-Through Laboratory Hoods

Use this key to configure the **nine digit catalog number** to order your Protector Pass-Through Laboratory Hood.

For example, a **113500002** is a 5' Protector Pass-Through Laboratory Hood, 100-115 volt, 50/60 Hz electrical requirements, two service fixtures and one GFCI electrical duplex receptacle.



STEP 1. Select the **width** of your fume hood. This number is the fourth digit of your catalog number. Add 10 lbs. (5 kg) for Fixtured Models.

4 = 4' (122 cm)/410 lbs. (186 kg)

5 = 5' (152 cm)/500 lbs. (227 kg)

6 = 6' (183 cm)/585 lbs. (265 kg)

STEP 2. Select the **side window option** for your fume hood. This number is the sixth digit of your catalog number.

0 = No window

7 = Left side window

8 = Right side window

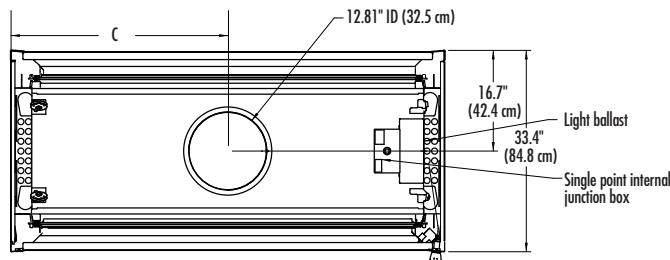
STEP 3. Select the **Electrical Requirements, Service Fixtures and GFCI Electrical Duplex Receptacle** combination you desire. These two numbers comprise the eighth and ninth digits of your catalog number.

Electrical Requirements	No Service Fixtures	Two Service Fixtures**	Two Service Fixtures & GFCI Duplex**
100-115 volts, 50/60 Hz, 10 amps	00	—	02
208-230 volts, 50/60 Hz, 5 amps	20	21	—

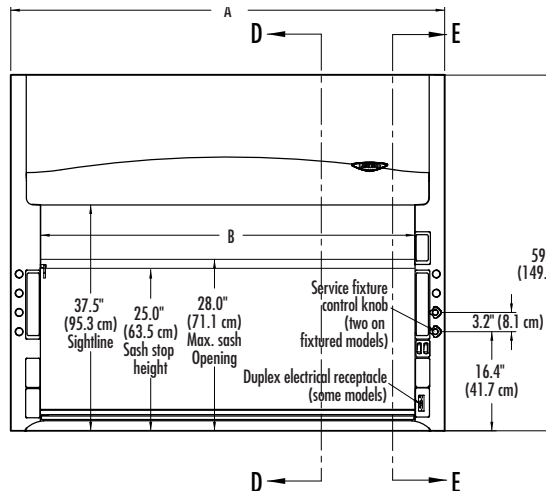
*On hoods with no window, the fixtures are mounted one on each side. On hoods with left side window, the fixtures are mounted on the right side. On hoods with right side window, the fixtures are mounted on the left side.

**Hoods with GFCI electrical duplex are rated at 20 amps, mounted on the right side.

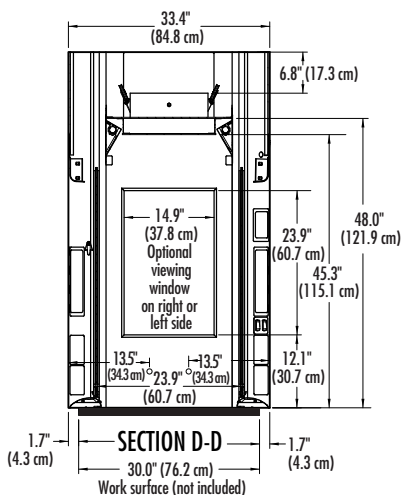
	A	B	C
4' Hood	48.0" (121.9 cm)	38.25" (97.2 cm)	24.0" (61.0 cm)
5' Hood	60.0" (152.4 cm)	50.25" (127.6 cm)	30.0" (76.2 cm)
6' Hood	72.0" (182.9 cm)	62.25" (158.1 cm)	36.0" (91.4 cm)



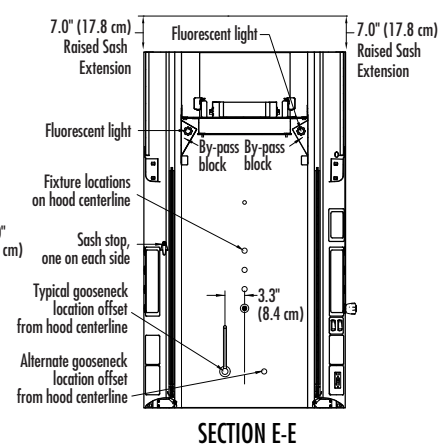
TOP



FRONT



SIDE



SECTION E-E

SIDE



Accessories

SpillStopper™ Work Surfaces

Use this key to configure the **seven digit catalog number** to order your SpillStopper Dished Solid Epoxy Work Surface. For example, a **9570610** is a 6' SpillStopper Work Surface, with a left rear cupsink cutout for use with a Protector Pass-Through Laboratory Hood.

9

5

7

0

STEP 1. Select the **nominal width** of your fume hood. This number is the fifth digit of your catalog number.

4 = 4'

5 = 5'

6 = 6'

STEP 2. Select a **left cupsink cutout** option (cupsink is sold separately). See dimensional drawing. This number is the sixth digit of your catalog number.

STEP 3. Select a **right cupsink cutout** option (cupsink is sold separately). See dimensional drawing. This number is the seventh digit of your catalog number.

Left Cupsink Cutout

0	None
1	Rear
2	Side*

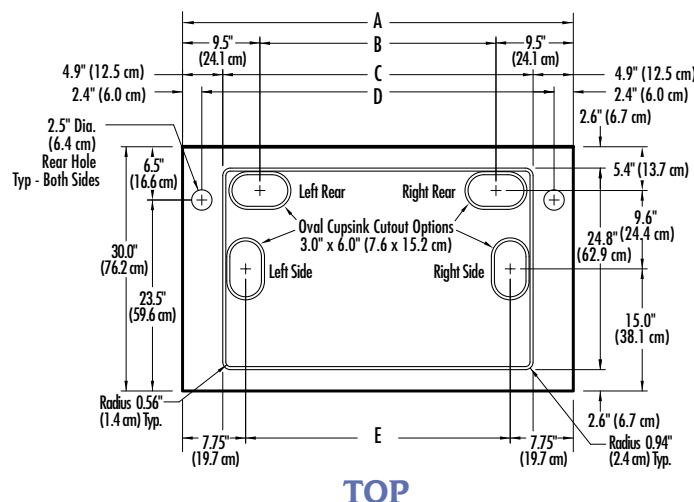
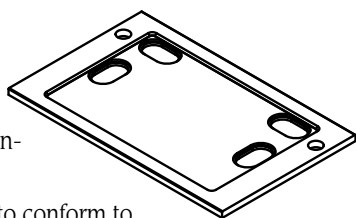
Right Cupsink Cutout

0	None
1	Rear
2	Side*

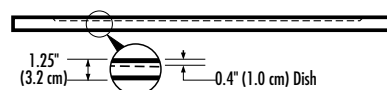
*Not compatible with Protector Solvent Storage Cabinets.

Features:

- Molded from a special formulation of corrosion-resistant epoxy resin.
- Dished and contoured to conform to the interior liner of Protector Pass-Through Hoods.
- Pre-drilled 2.5" (6.4 cm) diameter holes for plumbing pass-through.
- May be ordered with pre-cut 6" x 3" (15.2 x 7.6 cm) oval cupsink cutout(s). Cupsink is sold separately. See below.



TOP



FRONT

Nominal Hood Width	A	B	C	D	E
4 feet	48.0" (121.9 cm)	29.0" (73.7 cm)	38.2" (97.0 cm)	43.3" (109.9 cm)	32.5" (82.6 cm)
5 feet	60.0" (152.4 cm)	41.0" (104.1 cm)	50.2" (127.5 cm)	55.3" (140.4 cm)	44.5" (113.0 cm)
6 feet	72.0" (182.9 cm)	53.0" (134.6 cm)	62.2" (158.0 cm)	67.3" (170.9 cm)	56.5" (143.5 cm)

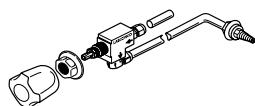


4005200 Oval Polypropylene Cupsink
Mounts in work surface with cupsink cutout, 3.0" x 6.0" (7.6 x 15.2 cm). 1.5" National Pipe Straight Mechanical (NPSM) thread. Shipping weight 4 lbs. (2 kg)



Accessories

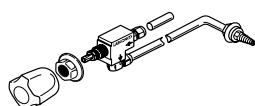
Protector® Pass-Through Laboratory Hoods



Cold Water Standard Service Fixture Kits

For mounting on the Protector Pass-Through Laboratory Hood. Up to eight service fixtures may be mounted on hoods without side windows, four on the left and four on the right. Up to four service fixtures may be mounted on hoods with side windows, on the side opposite the window. Fixtures may be mounted on the front or opposite side. Each kit includes one remotely-controlled service fixture with brass valve and 0.25" diameter brass tubing, color-coded fixture knob and color-coded hose connector. Maximum flow rate is 3.5 GPM (13.2 LPM). Maximum working pressure is 40 psi with a maximum allowable pressure of 200 psi. **Inlet tubing is not included.** Shipping weight 4 lbs. (2 kg)

Catalog #	Kit	Side Location*	Corner Post Position
9571000	Cold Water (CW)	Right	Lowest
9571001	Cold Water (CW)	Right	Mid-lower
9571002	Cold Water (CW)	Right	Mid-upper
9571003	Cold Water (CW)	Right	Highest
9571004	Cold Water (CW)	Left	Lowest
9571005	Cold Water (CW)	Left	Mid-lower
9571006	Cold Water (CW)	Left	Mid-upper
9571007	Cold Water (CW)	Left	Highest



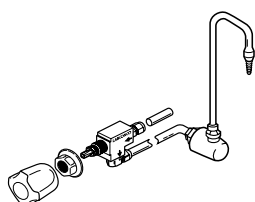
Gas Standard Service Fixture Kits

For mounting on the Protector Pass-Through Laboratory Hood. Up to eight service fixtures may be mounted on hoods without side windows, four on the left and four on the right. Up to four service fixtures may be mounted on hoods with side windows, on the side opposite the window. Fixtures may be mounted on the front or opposite side. Each kit includes one remotely-controlled service fixture with brass valve and 0.25" diameter copper tubing, color-coded fixture knob and color-coded hose connector. Maximum flow rate is 29.0 CFM (441 BTU/sec). Maximum working pressure is 40 psi with a maximum allowable pressure of 200 psi. **Inlet tubing is not included.** Shipping weight 4 lbs. (2 kg)

Catalog #	Kit	Side Location*	Corner Post Position
9571100	Gas (GAS)	Right	Lowest
9571101	Gas (GAS)	Right	Mid-lower
9571102	Gas (GAS)	Right	Mid-upper
9571103	Gas (GAS)	Right	Highest
9571104	Gas (GAS)	Left	Lowest
9571105	Gas (GAS)	Left	Mid-lower
9571106	Gas (GAS)	Left	Mid-upper
9571107	Gas (GAS)	Left	Highest

9826100 Standard Service Fixture Conversion Kit

Includes orange and yellow knobs and hose barbs and labels for converting Cold Water Standard Service Fixture or Gas Standard Service Fixture to air or vacuum. **Inlet tubing is not included.** Shipping weight 2 lbs. (1 kg)



Cold Water Gooseneck Fixture Kits

For mounting on the left or right side of the Protector Pass-Through Laboratory Hood. When not occupied by standard service fixtures, up to two gooseneck fixtures may be mounted on the hood, one on each side, including sides with windows. Each kit includes one remotely-controlled gooseneck with brass valve and 0.375" diameter copper tubing and green fixture knob. **Inlet tubing is not included.** Shipping Weight 10 lbs. (5 kg)

Catalog #	Kit	Description	Max. Flow Rate	Max. Working Pressure††
9827900**	Cold Water (CW) Gooseneck	Includes green epoxy-coated brass rigid/swivel gooseneck.	3.5 GPM (13.2 LPM)	40 psi

* Location is determined by facing the sash from the front or opposite side.

GPM=gallons per minute LPM=liters per minute CFM=cubic feet per minute BTU/sec=British thermal unit per second



Accessories

Protector® Pass-Through Laboratory Hoods



Guardian™ Digital Airflow Monitors

Guardian™ Digital Airflow Monitor senses and alerts the operator to low airflow conditions. LCD displays actual airflow in fpm or m/sec. Audible/visual alarm alerts the user to sustained low velocity condition. Calibration instructions displayed on LCD. Each monitor also includes a temperature-compensated sensor, external alarm, night setback and alarm mute functions. Flush-mount design. Contact Labconco for optional temperature sensor and optional RS-485 port for Modbus** RTU communication.

Catalog #	Electrical Configuration	Shipping Wt. lbs./kg
9413400	100-115 volts, 50/60 Hz	6/3
9413401*	208-230 volts, 50/60 Hz	6/3



Guardian™ Airflow Monitors

Sense and alert the operator to low airflow conditions. From the monitor's face plate, the user can easily select and calibrate a set point between 30 and 250 fpm using a velocity meter and a screwdriver. Audible/visual alarm. Includes night setback, external alarm and alarm mute functions. Flush-mount design. **Guardian Airflow Monitor Extension Kit 9571300 is required (sold separately).**

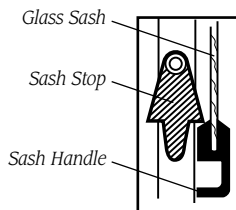
Catalog #	Electrical Configuration	Shipping Wt. lbs./kg
9413300	100-115 volts, 50/60 Hz	6/3
9413301*	208-230 volts, 50/60 Hz	6/3

9571300 Guardian™ Airflow Monitor Extension Kit

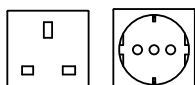
Required when ordering Guardian Airflow Monitor 9413300 or 9413301 for a Protector Pass-Through Laboratory Hood. Includes extension tube and adapter. Shipping weight 2 lbs. (1 kg)

9410300 Sash Stop Kit

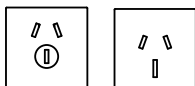
A Sash Stop restricts how far a vertical-rising sash may be opened. This small plastic device may be easily field installed on the fixture panel of any Protector Pass-Through Laboratory Hood. These hoods have sash stops at the open position of 25" to work surface. Alternate sash positions may be field drilled. Each Sash Stop Kit includes components for one sash. Shipping weight 0.5 lb. (0.2 kg)



9851500 Duplex Electrical Receptacle Kit, 115 volts, 20 amps AC, GFCI, 60 Hz



British (UK) Schuko



China Australia



India-South Africa

Electrical Receptacle Kits

For mounting in left or right side of any Protector Pass-Through Laboratory Hood. Each Receptacle kit includes an electrical receptacle, wiring, junction box and receptacle cover plate. The International GFCI Switch is mountable in one corner post location above or below any international single outlet.

Catalog #	Description	Outlet Type	Shipping Wt. lbs./kg
9851100	115 volts, 20 amps AC, 60 Hz	Duplex, U.S.	4/2
9851500	115 volts, 20 amps AC, GFCI, 60 Hz	Duplex, U.S.	4/2
9854200	230 volts, 20 amps AC, 60 Hz	Duplex, U.S.	4/2
9412500	230 volts, 13 amps AC, 50 Hz	Single, British (UK)	4/2
9412700	230 volts, 16 amps AC, 50 Hz	Single, Schuko	4/2
9412900	230 volts, 10 amps AC, 50 Hz	Single, China	4/2
9413100	230 volts, 10 amps AC, 50 Hz	Single, Australia	4/2
9413900	230 volts, 6-16 amps AC, 50 Hz	Single, India-South Africa	4/2
9414100	International GFCI Switch, 16 amps	Not Applicable	4/2

Contact Labconco at **800-821-5525** or **816-333-8811** for ordering information on blowers, ductwork, base cabinets, base stands and other accessories.

*International electrical configuration

**Modbus is a registered trademark of Schneider Automation



Standards & Registered Trademarks

Standards

Key aspects of standards and codes as they relate to laboratory ventilation are summarized below.

ASHRAE 110 Method of Testing Performance of Laboratory Fume Hoods (ANSI Approved)

Evaluates fume hood's containment characteristics.

- Three part test: Smoke generation, face velocity profile, tracer gas release @ 4 liters per minute.
- Rated As Manufactured (AM), As Installed (AI) and As Used (AU).

American Society of Heating, Refrigerating and Air-Conditioning Engineers

1791 Tullie Circle NE
Atlanta, GA 30329
(404) 636-8400
www.ashrae.org

ANSI Z9.5 Standard—Laboratory Ventilation

Covers entire laboratory ventilation system.

- Vertical stack discharge @ 2000-3000 fpm.
- New and remodeled hoods shall have a monitoring device.
- Ductless hoods should only be used with non-hazardous materials.

American Industrial Hygiene Association

2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031
(703) 849-8888
www.aiha.org

Federal Register 29 CFR Part 1910

Occupational exposure to hazardous chemicals in laboratories

National Research Council Recommendations Concerning Chemical Hygiene in Laboratories (Non-mandatory) from "Prudent Practices."

- Fume hoods should have a continuous monitoring device.
- Face velocities should be between 60-100 linear feet per minute (lfpm).
- Average 2.5 linear feet of hood space per person.

Occupational Safety & Health Administration U.S. Department of Labor

200 Constitution Avenue, NW
Washington, DC 20210
(800) 321-6742
www.osha.gov

ASTM E84-09C Standard Test Method for Surface Burning Characteristics of Building Materials

Determines the relative burning behavior of the material by observing the flame spread along the specimen.

- Measures the flame spread and smoke development.
- Material is exposed to flaming fire for 10 minutes and the results measured and recorded.
- Results are compared to the indexes of mineral fiber cement board (flame spread and smoke development of zero) and red oak flooring (smoke development of 100).

ASTM International

100 Barr Harbor Drive
P.O. Box C700
West Conshohocken, PA 19428-2959
(610) 832-9585
www.astm.org

NFPA 45: Standard on Fire Protection for

Laboratories Using Chemicals, 2011 edition

- Laboratory hoods should not be relied on for explosion protection.
- Fume hood exhaust air should not be recirculated.
- Services should be external to the hood.
- Materials of construction should have flame spread of 25 or less.

National Fire Protection Association

1 Batterymarch Park
Quincy, MA 02169-7471
(800) 344-3555 or (617) 770-3000
www.nfpa.org

NIH - Section 15991 Onsite Testing for Constant Volume Hoods - June 2006

- Follows ASHRAE test methods except for the following:
 1. 6 L tracer gas release rate instead of 4 L.
 2. Hood is loaded with boxes and cans.
 3. Rapid walk-by test.

National Institutes of Health

9000 Rockville Pike
Bethesda, MD 20892
(301) 496-4000
www.nih.gov

SEFA 1 Laboratory Fume Hoods Recommended Practices

- High performance fume hood definition: hood with sash fully open and operating at 60 fpm contains at 4.0 AM 0.05
- Covers design, installation, testing, maintenance and safe use of laboratory fume hoods

SEFA 8 Recommended Practices For Metal Laboratory Grade Furniture, Casework, Shelving and Tables, 8.0 Cabinet Surface Finish Tests

Defines test methods for evaluating the finish of laboratory furniture.

- Laboratory grade paint finishes shall withstand chemical exposure, hot water, and impact from a one-pound ball dropped from 12".
- Paint coating shall sufficiently adhere to the substrate.
- Paint shall be resistant to scratches.

Scientific Equipment & Furniture Association

1205 Franklin Avenue, Suite 320
Garden City, NY 11530
(516) 294-5424
www.sefalabs.com

UL 61010-1 Electrical Equipment for Laboratory Use

Specifies the general safety requirements for electrical equipment.

- Based on International Electrotechnical Commission (IEC) Publication 61010-1 with differences noted for U.S. use.
- Tests for protection against electrical shock, mechanical hazards, spread of fire, radiation, liberated gases, explosion and implosion.
- Tests for resistance to shock, vibration, impact, heat, moisture and liquids.

Underwriters Laboratories Inc.

333 Pfingsten Road
Northbrook, IL 60062-2096
(847) 272-8800
www.ul.com

CAN/CSA Standard C22.2 No. 1010.1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

Specifies general safety requirements for electrical equipment.

- Design and methods of construction should provide adequate protection to the operator and the surrounding area against shock or burn, mechanical hazards, excessive temperature, spread of fire from the equipment, gas liberation, explosion or implosion.

Canadian Standards Association

5060 Spectrum Way, Suite 100
Mississauga, Ontario
L4W 5N6, CANADA
(800) 463-6727 or (416) 747-4044
www.csa.ca

ETL listing

ETL Testing Laboratories is a Nationally Recognized Testing Laboratory (NRTL). The ETL mark signifies that a product conforms to the following:

- UL Standard 61010-1 in the U.S.
- CAN/CSA Standard C22.2 No. 61010.1 in Canada.
- Products that bear the ETL mark are subjected to a comprehensive safety program that includes testing, listing, labeling and quarterly follow-up inspections.

Intertek Group

www.intertek.com

CE Marking

Indicates an electrical apparatus conformity to all safety and other directives/specifications presently required by the Council of European Communities.

- Electrical safety.
- Electromagnetic emissions testing—interference signals being output by the product.
- Electromagnetic immunity testing—the product does not respond to outside electromagnetic interference signals.

European Union

www.europa.eu

Registered Trademarks

ANSI® is a registered trademark of American National Standards Institute.

SEFA® is a registered trademark of Scientific Equipment and Furniture Association.

UL® is a registered trademark of UL, LLC.



Protecting your laboratory environment

LABCONCO®

Labconco Corporation

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800-821-5525 or 816-333-8811
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