

**Microzone Corporation BioKlone Series 2, Class II, Type A2 (formerly A/B3)
Biological Safety Cabinet Technical Specification**

PART 1 GENERAL

PART 1.01 GENERAL INFORMATION

This Section specifies all requirements necessary to furnish and install a biological safety cabinet including, but not limited to the following:

1. This specification covers the requirements for a Class II, Type A2 (formerly A/B3) biological safety cabinets.
2. Nominal 4 and 6-foot widths are covered by this specification.
3. This specification sets the intent for quality, performance and appearance.
4. Supply and install as scheduled in laboratory schedule and drawings.
5. Coordinate installation with other trades to avoid onsite conflicts.
6. Reference related sections within the specification document in conjunction with the following specifications to insure total requirements for the referenced biological containment cabinets are provided.

1.02 QUALITY ASSURANCE

1. The manufacturer shall maintain a testing facility at their place of business for the performance testing of Class II, Type A2 safety cabinets. Both safety cabinet and installation shall be in conformance to good construction practice and approved by the owner/user. The test facility as well as the manufacturing facility must be available for owner/user inspection and its quality control procedures. All safety cabinets wired for 115 volts, 60 Hz shall be built to meet or exceed the minimum requirements of NSF Standard 49 and bear the NSF Mark.

1.03 REFERENCES

1. The Class II, Type A2 safety cabinets shall conform to the following regulations and standards:
NSF International -- Standard 49 for Biohazard Cabinetry (115 volt, 60 Hz models only)
Electrical Approval -- CAN/CSA -- C22.2 No. 1010.1-92

1.04 SUBMITTALS

1. Class II, Type A2 biological safety cabinet specification sheets and product manuals shall be submitted by the manufacturer upon request. The safety cabinet supplier shall submit shop drawings when necessary for clarification.
2. Provide a detailed copy of the test results conducted prior to shipping to ensure compliance with NSF 49 shall be shipped with each cabinet.

1.05 DELIVERY AND STORAGE

1. Class II, Type A2 biological safety cabinets shall be delivered in unopened crated packages adequately protected from damage during shipment.
2. Exercise extreme care in handling all biological containment cabinets to prevent any damage.
3. Store materials within the building in the space designated for storage. Store materials in such manner as to prevent any damage or intrusion of foreign matter. Any damaged materials must be noted and scheduled with the job site installation foreman for removal and replacement from the job-site prior to installation.

1.06 WARRANTY

1. Manufacturer's warranty against defects in material or workmanship on its biological safety cabinets for 3 years from date of shipping, shall include replacement of parts (except HEPA filters and lamps) and labor.

**Microzone Corporation BioKlone Series 2, Class II, Type A2 (formerly A/B3)
Biological Safety Cabinet Technical Specification**

PART 2 - PRODUCTS

2.01 PRODUCT NAME

BioKlone Series 2 Class II, Type A2 Safety Cabinets, model numbers as described below:
4 Foot Models: BK-2-4, 6 Foot Models: BK-2-6

2.02 ACCEPTABLE MANUFACTURER

Microzone Corporation,
Laboratory Equipment Group,
86 Harry Douglas Drive,
Ottawa, Ontario, Canada, K2S 2C7
Phone: 613-831-8318, or Toll Free: 1-877-252-7710
Fax: 613-831-8321, Email: sales@microzone.com

2.03 MATERIALS OF CONSTRUCTION

1. Interior construction shall include walls constructed from 16 gauge, type 304 stainless steel. The dished work surface with integral front air intake airfoil shall be 18 gauge, type 304 stainless steel.
2. Exterior panels shall be epoxy-coated, 18 gauge cold rolled steel without exposed bolts or nuts.
3. Liner shall be 16 gauge Type 304 stainless steel. Liner assembly shall have integral face flange for sealing the cabinet during decontamination and pressure test operations.
4. Exhaust cover shall be white epoxy-coated steel.
5. HEPA filters shall be a minimum of 99.99% efficient on all particles 0.3µm. HEPA filters shall be industry-standard size.
6. Fluorescent lighting shall provide 80 to 150 foot-candles on work surface as per NSF 49.
7. The hinged recessed sash shall include 1/4" thick tempered safety glass.
8. Wiring harnesses shall be color coded and alphanumerically labeled for identification. Removable wire tags shall not be used.
9. Speed control shall be solid state and load rated for motor voltage and shall be set and adjusted electronically.
10. Electronic "SPM" constant pressure gauge shall monitor system pressure. This system reports the static condition of the integral filter systems both visual and audible with an alarm feature in the event of drop in static, motor failure or increased pressure.
11. Motor shall be 1/3 hp, thermally protected, capacitor run type.
12. Electrical duplexes with interlocking ground fault interruption shall have splash covers.
13. HEPAIRE patented internal flexible air plenum.
14. External air balancing system shall be controlled-orifice type.
15. Drain trough beneath the work tray shall be equipped with a 3/8" ball-type drain valve.
16. Digital "DMC" soft start circuit motor control panel with on/off feature for blower/white and ultraviolet light switch and interior duplex outlet. Integral circuitry provides constant monitoring of voltage to the motor, current motor draw, line voltage frequency and on-board diagnostics. In the event of a system fault, the system features flash codes on LED display indicating area of failure.
17. Optional service fixtures (on models with fixture) shall be quarter-turn, on-off style, constructed of chrome-plated brass and their location as shown on drawings.
18. Optional ultraviolet germicidal lamp with remote on/off switching.

**Microzone Corporation BioKlone Series 2, Class II, Type A2 (formerly A/B3)
Biological Safety Cabinet Technical Specification**

2.04 FABRICATION

1. Overall exterior dimensional information on biological safety cabinets is as described in the table.
Nominal Dimensions
4 ft. wide: 52.5" w x 29.25" d x 83" h
6 ft. wide: 76.5" w x 29.25" d x 83" h
2. Exterior front panel shall sloped and have no visibility-interfering protrusions.
3. The dished work surface and integral front air intake foil shall be single piece construction, with no silicone sealant or solder used to seal any surface.
4. Perforated exhaust filter protection cap shall provide.
5. Air intake airflow Slots, located in front of the airfoil's inflow grille, shall draw air into the cabinet.
6. Cabinet assembly shall be constructed such that all positive pressure contaminated plenums shall be surrounded by negative pressure plenums. Cabinet shall be designed such that all major service operations can be performed from the front of the cabinet.
7. Cabinet shall have true laminar (uniform) downflow as defined in NSF Standard 49.
8. Nominal downflow shall be $55 \pm$ fpm and nominal inflow shall be $105 \pm$ fpm.
9. Supply and exhaust HEPA filters shall be secured in the upper cabinet assembly by clamps. HEPA filters shall be removable from the front of the cabinet.
10. Sash shall be recessed and hinged, capable of moving to a fully opened position when cabinet is not in operation. Sash shall not require removal for routine filter or motor/blower service.
11. All major electronic components (speed control, ballasts, starters, switches, motor capacitors, circuit breakers) shall be housed in a removable module for service or testing, located in the front of the cabinet.
12. The "DMC" control shall be mounted on the front face of the cabinet.
13. The "SPM" static pressure gauge shall be mounted on the front face of the cabinet for easy visibility and shall be connected to a positive pressure duct.
14. Motor mounting system shall be a permanent part of the motor housing.
15. One electrical duplex outlet with interlocking ground fault interruption and splash cover shall be mounted inside of the interior liner.
16. A 10-foot power cord shall connect the cabinet to a suitable 115 volt service.
17. All switching for system controls shall be individual.
18. The sash pocket shall shield the sash as it is raised so that potential contamination may not spread to the upper plenum area and to the environment.
19. Sound level shall be 67 dbA or less when measured in accordance to NSF Standard 49.
20. The cabinet shall be able to accommodate up to 4 service fixtures.

PART 3 - EXECUTION

3.01 INSPECTION

1. Carefully check the contents of the carton for damage that might have occurred in transit.

3.02 PREPERATION

1. Verify equipment rough in before proceeding with work.
2. Coordinate with other trades for the proper and correct installation of plumbing and electrical rough in and for rough opening dimensions required for the installation of the hood.

3.03 INSTALLATION

1. Install according to manufacturer's instructions.
2. Install according to standards required by authority having jurisdiction.
3. Install equipment plumb, square and straight with no distortion and securely anchor as required.
4. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
5. Touch up minor damaged surfaces caused by installation. Replace damaged components as directed by Architect.

3.04 FIELD QUALITY CONTROL

1. A qualified independent certifier should certify the cabinet before use. The certifier should perform tests as recommended in NSF International Standard Number 49.

3.05 CLEANING

1. Clean equipment surfaces as recommended by the manufacturer, rendering all work in a new and unused appearance.
2. Clean adjacent construction and surfaces, which may have been soiled in the course of installation of work in this section.

3.06 PROTECTION

1. Provide all necessary protective measures to prevent exposure of equipment and surfaces from exposure to other construction activity.
2. Advise contractor of procedures and precautions for protection of material from damage by work of other trades.