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# LIST OF ATTACHMENTS

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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 (304) 926-0475  
 www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT  
 AND  
 TITLE V PERMIT REVISION  
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):  
 CONSTRUCTION  MODIFICATION  RELOCATION  
 CLASS I ADMINISTRATIVE UPDATE  TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE  AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):  
 ADMINISTRATIVE AMENDMENT  MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION  
 IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

**FOR TITLE V FACILITIES ONLY:** Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

**Section I. General**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1. Name of applicant (as registered with the WV Secretary of State's Office):<br>Bombardier Services Corporation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | 2. Federal Employer ID No. (FEIN):<br>383040099                                                                                              |  |
| 3. Name of facility (if different from above):<br>Bridgeport Facility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 4. The applicant is the:<br><input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH        |  |
| 5A. Applicant's mailing address:<br>2400 Aviation Way<br><br>Bridgeport, WV 26330                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | 5B. Facility's present physical address:<br>same                                                                                             |  |
| 6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br>⇒ If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A.<br>⇒ If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A. |  |                                                                                                                                              |  |
| 7. If applicant is a subsidiary corporation, please provide the name of parent corporation: Bombardier Aerospace                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                              |  |
| 8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br>⇒ If YES, please explain: Applicant owns the facility<br>⇒ If NO, you are not eligible for a permit for this source.                                                                                                                                                                                                                                                                            |  |                                                                                                                                              |  |
| 9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): aerospace maintenance and repair facility                                                                                                                                                                                                                                                                                                                                    |  | 10. North American Industry Classification System (NAICS) code for the facility:<br>48819, 336413, 48811                                     |  |
| 11A. DAQ Plant ID No. (for existing facilities only):<br>033-00132                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | 11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):<br>R13-2236A |  |

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------|
| <p>12A.</p> <p>⇒ For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road;</p> <p>⇒ For <b>Construction</b> or <b>Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b>.</p> <p>From I-79 take exit 124. Turn south onto SR 279. Turn right onto SR 131. Turn left onto Airport Road. Facility is located just past the airport terminal in the North Central Regional Airport Complex.</p> |                                          |                                                                                 |
| 12.B. New site address (if applicable):<br>NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12C. Nearest city or town:<br>Bridgeport | 12D. County:<br>Harrison                                                        |
| 12.E. UTM Northing (KM): 4350.140                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 12F. UTM Easting (KM): 566.399           | 12G. UTM Zone: 17                                                               |
| <p>13. Briefly describe the proposed change(s) at the facility:<br/>Addition of a natural gas heated spray booth; sanding booth, unheated spray booth</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |                                                                                 |
| <p>14A. Provide the date of anticipated installation or change: 02/01/2015</p> <p>⇒ If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: / /</p>                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          | <p>14B. Date of anticipated Start-Up if a permit is granted:<br/>02/01/2015</p> |
| <p>14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).</p>                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |                                                                                 |
| <p>15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application:<br/>Hours Per Day 24 Days Per Week 7 Weeks Per Year 52</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |                                                                                 |
| <p>16. Is demolition or physical renovation at an existing facility involved? <input checked="" type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>NO</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |                                                                                 |
| <p>17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a>), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.</p>                                                                                                                                                                                                                                                                                                                                               |                                          |                                                                                 |
| <p>18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (<i>if known</i>). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (<i>if known</i>). Provide this information as <b>Attachment D</b>.</p>                                                                                                                                                                                               |                                          |                                                                                 |
| <p><b>Section II. Additional attachments and supporting documents.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |                                                                                 |
| <p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                                                 |
| <p>20. Include a <b>Table of Contents</b> as the first page of your application package.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                                                 |
| <p>21. Provide a <b>Plot Plan</b>, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b>).</p> <p>⇒ Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).</p>                                                                                                                                                                                                                                                                                                         |                                          |                                                                                 |
| <p>22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |                                                                                 |
| <p>23. Provide a <b>Process Description</b> as <b>Attachment G</b>.</p> <p>⇒ Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |                                                                                 |
| <p><i>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |                                                                                 |

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.  
 ⇨ For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

|                                                          |                                                  |                                                                                  |
|----------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------|
| <input type="checkbox"/> Bulk Liquid Transfer Operations | <input type="checkbox"/> Haul Road Emissions     | <input type="checkbox"/> Quarry                                                  |
| <input type="checkbox"/> Chemical Processes              | <input type="checkbox"/> Hot Mix Asphalt Plant   | <input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities |
| <input type="checkbox"/> Concrete Batch Plant            | <input type="checkbox"/> Incinerator             | <input type="checkbox"/> Storage Tanks                                           |
| <input type="checkbox"/> Grey Iron and Steel Foundry     | <input type="checkbox"/> Indirect Heat Exchanger |                                                                                  |

General Emission Unit, specify: heated spray paint booth

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

|                                             |                                                     |                                                |
|---------------------------------------------|-----------------------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Absorption Systems | <input type="checkbox"/> Baghouse                   | <input type="checkbox"/> Flare                 |
| <input type="checkbox"/> Adsorption Systems | <input type="checkbox"/> Condenser                  | <input type="checkbox"/> Mechanical Collector  |
| <input type="checkbox"/> Afterburner        | <input type="checkbox"/> Electrostatic Precipitator | <input type="checkbox"/> Wet Collecting System |

Other Collectors, specify: particulate filters

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.  
 > Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?  
 YES     NO  
 > If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's **"Precautionary Notice – Claims of Confidentiality"** guidance found in the **General Instructions** as **Attachment Q**.

**Section III. Certification of Information**

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

|                                                                            |                                                           |
|----------------------------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Authority of Corporation or Other Business Entity | <input type="checkbox"/> Authority of Partnership         |
| <input type="checkbox"/> Authority of Governmental Agency                  | <input type="checkbox"/> Authority of Limited Partnership |

Submit completed and signed **Authority Form** as **Attachment R**.

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

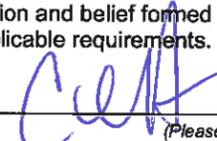
35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

**Certification of Truth, Accuracy, and Completeness**

I, the undersigned  **Responsible Official** /  **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

**Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE   
(Please use blue ink)

DATE: 1-22-15  
(Please use blue ink)

35B. Printed name of signee: Chad Hill

35C. Title: Director of Operations

35D. E-mail:  
chad.hill@aero.bombardier.com

36E. Phone: 304-848-5090

36F. FAX: 304-848-5164

36A. Printed name of contact person (if different from above): Michael Wolfe

36B. Title: Program Manager

36C. E-mail:  
mike.wolfe@aero.bombardier.com

36D. Phone: 304-848-5106

36E. FAX:

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

- |                                                                                      |                                                                                         |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate               | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet            |
| <input checked="" type="checkbox"/> Attachment B: Map(s)                             | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)          |
| <input type="checkbox"/> Attachment C: Installation and Start Up Schedule            | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input type="checkbox"/> Attachment D: Regulatory Discussion                         | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations     |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan                          | <input type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)   | <input checked="" type="checkbox"/> Attachment P: Public Notice                         |
| <input checked="" type="checkbox"/> Attachment G: Process Description                | <input type="checkbox"/> Attachment Q: Business Confidential Claims                     |
| <input checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms                                  |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table               | <input type="checkbox"/> Attachment S: Title V Permit Revision Information              |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee                                     |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

**FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:**

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
- NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
- Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
  - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
- NSR permit writer should notify a Title V permit writer of draft permit,
  - Public notice should reference both 45CSR13 and Title V permits,
  - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

**WEST VIRGINIA  
STATE TAX DEPARTMENT  
BUSINESS REGISTRATION  
CERTIFICATE**

ISSUED TO:  
**BOMBARDIER SERVICES CORPORATION  
2400 AVIATION WAY  
BRIDGEPORT, WV 26330-9729**

BUSINESS REGISTRATION ACCOUNT NUMBER: **1028-9376**

This certificate is issued on: **06/10/2010**

*This certificate is issued by  
the West Virginia State Tax Commissioner  
in accordance with W.Va. Code § 11-12.*

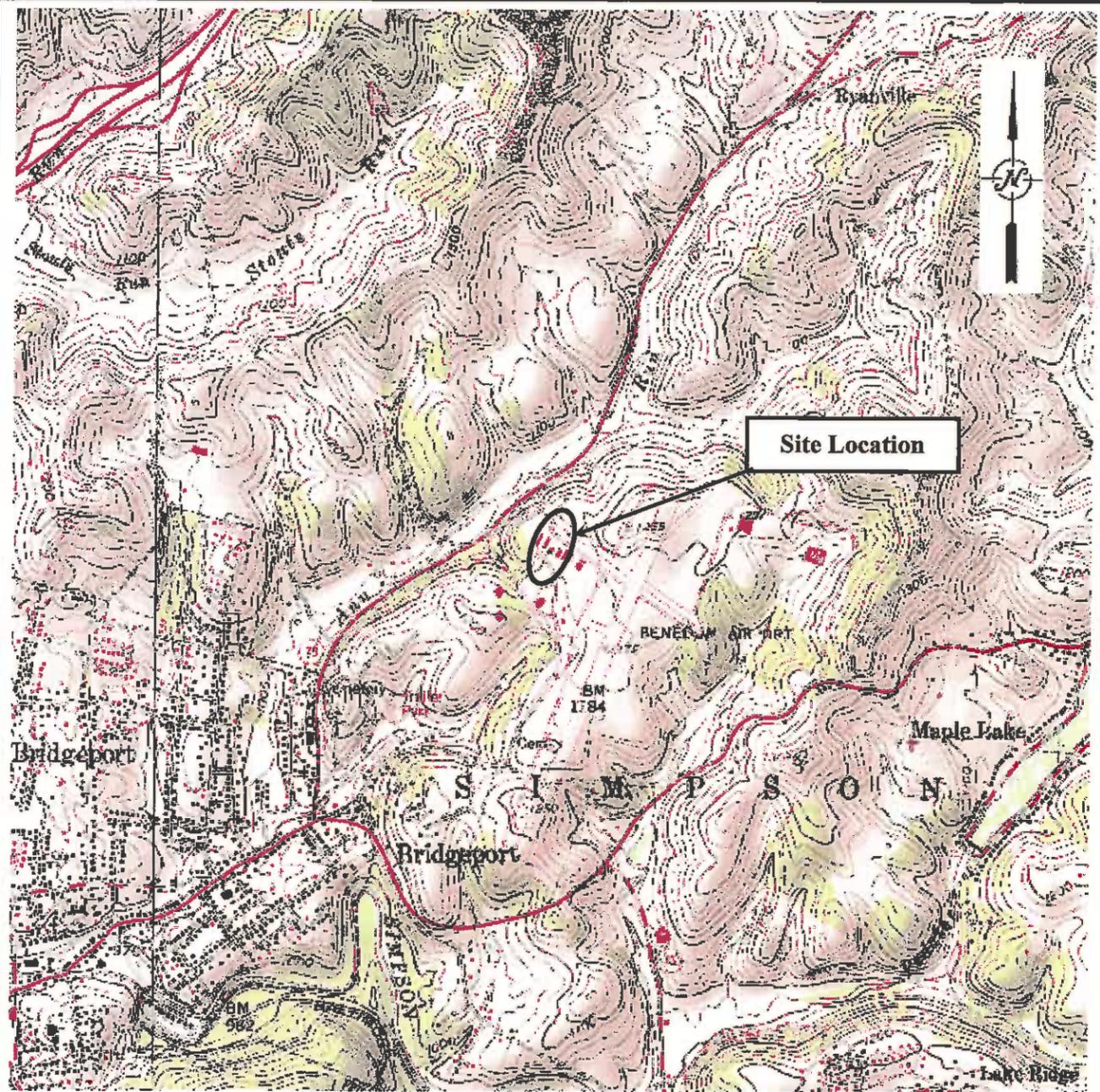
*The person or organization identified on this certificate is registered  
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

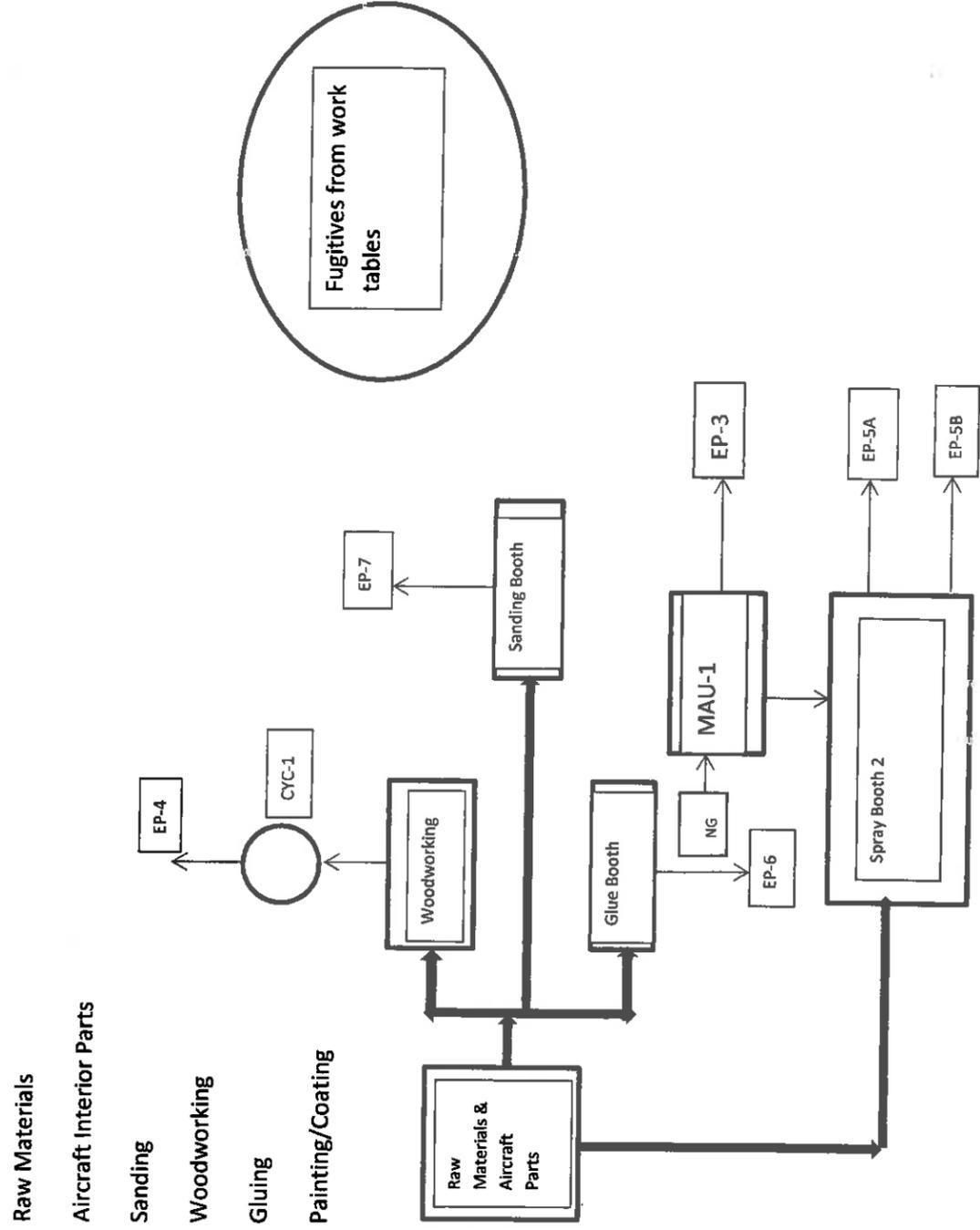
TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.  
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.



|                                                                                                                                                              |                                                                                                                       |                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Reference:<br/>3-D TopoQuads © DeLorme,<br/>Yarmouth, Me 04096</p> <p>Source Data:<br/>7.5 Minute USGS<br/>Topographic Quadrangle</p> <p>Rosemont, WV</p> | <p><b>Vicinity Map</b></p> <p>Scale 1" = 2000'</p> <p><i>MSES Consultants, Inc.</i><br/>Clarksburg, West Virginia</p> | <p><b>BOMBARDIER<br/>SERVICES<br/>CORPORATION</b></p> <p><b>Air Permit Application</b></p> <p>Project No. 14-520</p> <p><b>Figure 1</b></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|



# ATTACHMENT F – PROCESS FLOW DIAGRAM



# ATTACHMENT G

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## PROCESS DESCRIPTION

Bombardier Services Corporation (Bombardier) is located at the North Central Regional Airport in Bridgeport, West Virginia.

Bombardier provides heavy inspection of commercial and private aircraft.

This permit modification consists of adding a heated spray paint booth, a sanding booth, a glue booth, and various pieces of woodworking equipment.

Various interior aircraft parts that require repair and/or refurbishing are processed by cleaning, sanding, painting, and/or gluing. Some pieces may be fabricated with the woodworking equipment which includes saws, a planer, and a sander.

The spray booth will be heated by a 1.5 million Btu per hour natural gas fired heater. Coating solids will be controlled by a fabric filter.

The woodworking equipment and downdraft tables will be vented to a cyclone air pollution control device.

Chemical usage is not expected to exceed a total of 10 gallons per month or 120 gallons per year. This is based on chemical usage at a similar Bombardier facility.



EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

| Emission Point ID No. (Must match Emission Units Table & Plot Plan) | Emission Point Type <sup>1</sup> | Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan) |                  | Air Pollution Control Device (Must match Emission Units Table & Plot Plan) |               | Vent Time for Emission Unit (chemical processes only) |             | All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)                                                                                    | Maximum Potential Uncontrolled Emissions <sup>4</sup>    |                                                                        | Maximum Potential Controlled Emissions <sup>5</sup>      |                                                                          | Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor) | Est. Method Used <sup>6</sup> | Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>4</sup> ) |
|---------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------|---------------|-------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------|
|                                                                     |                                  | ID No.                                                                                | Source           | ID No.                                                                     | Device Type   | Short Term <sup>2</sup>                               | Max (hr/yr) |                                                                                                                                                                     | lb/hr                                                    | ton/yr                                                                 | lb/hr                                                    | ton/yr                                                                   |                                                                         |                               |                                                                  |
| EP-3                                                                | Upward Vertical Stack            | MAU-1                                                                                 | Make-up Air Unit | NA                                                                         | NA            | NA                                                    | NA          | CO<br>NOx<br>PM<br>SO2<br>VOC                                                                                                                                       | 0.13<br>0.15<br>0.01<br>0.001<br>0.01                    | 0.55<br>0.66<br>0.05<br>0.004<br>0.04                                  | NA                                                       | NA                                                                       | Gas/Vapor<br>Solid                                                      | MB/EE                         |                                                                  |
| EP-4                                                                | Horizontal Stack                 | CYC-1                                                                                 | Cyclone          | NA                                                                         | NA            | NA                                                    | NA          | PM                                                                                                                                                                  | 1.0                                                      | 1.0                                                                    | 0.15                                                     | 0.15                                                                     | Solid                                                                   | MB/EE                         |                                                                  |
| EP-5A & EP-5B                                                       | Horizontal Stacks                | SB-2                                                                                  | Spray Booth 2    | SB-2C                                                                      | Fabric Filter | NA                                                    | NA          | PM<br>VOC<br>Styrene (100-42-5)<br>Xylenes (1330-20-7)<br>MIBK (108-10-1)<br>2,4-TDI (584-84-9)<br>Hexamethylene Diisocyanate (822-06-0)<br>Formaldehyde (500-00-0) | 14.58<br>3.13<br>1.43<br>0.99<br>0.025<br>0.025<br>0.023 | 0.019<br>0.875<br>0.19<br>0.086<br>0.059<br>0.0075<br>0.0015<br>0.0014 | 14.58<br>3.13<br>1.43<br>0.99<br>0.025<br>0.025<br>0.023 | 0.00019<br>0.875<br>0.19<br>0.086<br>0.059<br>0.0015<br>0.0015<br>0.0014 | Solid<br>Gas/Vapor                                                      | MB/EE                         |                                                                  |
| EP-6                                                                | Horizontal Stack                 | GB-1                                                                                  | Glue Booth       | GB-1C                                                                      | Fabric Filter | NA                                                    | NA          | PM<br>VOC<br>n-Hexane (110-54-3)<br>Toluene (108-88-3)                                                                                                              | 2.72<br>0.68<br>0.24                                     | 0.014<br>0.065<br>0.016<br>0.0057                                      | 2.72<br>0.68<br>0.24                                     | 0.00014<br>0.065<br>0.016<br>0.0057                                      | Solid<br>Gas/Vapor                                                      | MB/EE                         |                                                                  |
| EP-7                                                                | Horizontal Stack                 | SaB-1                                                                                 | Sanding Booth    | SaB-1C                                                                     | Fabric Filter | NA                                                    | NA          | PM                                                                                                                                                                  | 1.0                                                      | 1.0                                                                    | 0.01                                                     | 0.01                                                                     | Solid                                                                   | MB/EE                         |                                                                  |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source page 1\_ of 2\_

are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, etc. **DO NOT LIST** CO<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).



**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): MAU-1

|                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Name or type and model of proposed affected source:</p> <p>Banza B-Series Direct-Fired Air Handler Model B-2000</p>                                                                                                                                                                  |
| <p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p> |
| <p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>1,500 cubic feet of natural gas per hour</p>                                                                                                                                                     |
| <p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>14,000 cfm heated make-up air</p>                                                                                                                                                                       |
| <p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p> <p>combustion of natural gas</p>                                                                                                                                              |

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

|                                                                                                                           |    |            |                           |
|---------------------------------------------------------------------------------------------------------------------------|----|------------|---------------------------|
| 6. Combustion Data (if applicable):                                                                                       |    |            |                           |
| (a) Type and amount in appropriate units of fuel(s) to be burned:                                                         |    |            |                           |
| 1,500 cubic feet per hour of natural gas                                                                                  |    |            |                           |
| (b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:                      |    |            |                           |
| pipeline quality natural gas                                                                                              |    |            |                           |
| (c) Theoretical combustion air requirement (ACF/unit of fuel):                                                            |    |            |                           |
|                                                                                                                           | @  | °F and     | psia.                     |
| (d) Percent excess air:                                                                                                   |    |            |                           |
| (e) Type and BTU/hr of burners and all other firing equipment planned to be used:                                         |    |            |                           |
| 1.5 mmBtu/hr Series NP-LE Airflo In-duct firing line burner                                                               |    |            |                           |
| (f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired: |    |            |                           |
| NA                                                                                                                        |    |            |                           |
| (g) Proposed maximum design heat input:                                                                                   |    | 1.5        | × 10 <sup>6</sup> BTU/hr. |
| 7. Projected operating schedule:                                                                                          |    |            |                           |
| Hours/Day                                                                                                                 | 24 | Days/Week  | 7                         |
|                                                                                                                           |    | Weeks/Year | 52                        |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

| @                   | °F and |       | psia       |
|---------------------|--------|-------|------------|
| a. NO <sub>x</sub>  | 0.15   | lb/hr | grains/ACF |
| b. SO <sub>2</sub>  | 0.001  | lb/hr | grains/ACF |
| c. CO               | 0.13   | lb/hr | grains/ACF |
| d. PM <sub>10</sub> | 0.01   | lb/hr | grains/ACF |
| e. Hydrocarbons     |        | lb/hr | grains/ACF |
| f. VOCs             | 0.01   | lb/hr | grains/ACF |
| g. Pb               |        | lb/hr | grains/ACF |
| h. Specify other(s) |        | lb/hr | grains/ACF |
|                     |        | lb/hr | grains/ACF |
|                     |        | lb/hr | grains/ACF |
|                     |        | lb/hr | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

|            |               |
|------------|---------------|
| MONITORING | RECORDKEEPING |
| REPORTING  | TESTING       |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

# **BANANZA®**

## **B-Series**

### **Equipment Specifications**

**1.800.255.3416**



CANADA: 100% OUTSIDE AIR ONLY

# DIRECT FIRED AIR HANDLER GUIDE SPECIFICATION

## PART 1 GENERAL

Provide units with gas-fired heating and ventilating sections, designed and manufactured for indoor or outdoor installation. Units shall be packaged air handlers which include casing, modulating burner, and non-overloading fan. AM (20% - 100% outdoor air) and FR (20% outdoor air) Models also include a mixing chamber and positive position modulating return air dampers.

### 1.1 SECTION INCLUDES

- A. Direct-fired air handler
- B. Controls

### 1.2 REFERENCES

- A. American National Standards Institute (ANSI):  
(Establishes requirements applicable to certifying direct gas-fired heaters.)
  - 1. MUA Model: Standard Z83.4;  
Non-Recirculating Direct Gas-Fired Industrial Air Heaters
  - 2. AM, FR Models: Standard Z83.18;  
Recirculating Direct Gas-Fired Industrial Air Heaters
- B. American Society for Testing Materials (ASTM):
  - 1. Standard A653/653M; Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process
- C. ETL Testing Laboratories, Inc. (ETL):  
(Nationally recognized testing laboratory certifies code conformance.)
  - 1. Requirements applicable to product labeling and listing in the Directory of ETL Listed Products.
- D. Factory Mutual Insurance (FM):  
(Certifies gas manifold to owner's insurance carrier.)
- E. Industrial Risk Insurance (IRI):  
(Certifies gas manifold to owner's insurance carrier.)
- F. National Electrical Manufacturers Association (NEMA):
  - 1. Standard 250; Enclosures for Electrical Equipment (1000 V Maximum)
- G. National Fire Protection Association (NFPA):  
(Establishes fire prevention standards.)
  - 1. Article 54; National Fuel Gas Code
  - 2. Article 70; National Electric Code
  - 3. Article 90A; Installation of Air Conditioning and Ventilating Systems
- H. National Roofing Contractors Association (NRCA):
  - 1. The NRCA Roofing and Waterproofing Manual, Second Edition
- I. Occupational Safety and Health Administration (OSHA):  
(Enforces air quality standards and safety in the workplace.)
- J. Underwriters Laboratories, Inc. (UL):  
(Nationally recognized testing laboratory certifies code conformance, product labeling and listing.)
  - 1. Standard UL916 Energy Management Equipment
  - 2. Standard UL873 Temperature Indicating & Regulating Equipment

### 1.3 SUBMITTALS FOR REVIEW

- A. Product Data: Provide data with dimensions, duct and service connections, accessories, controls, electrical nameplate data and wiring diagrams.
- B. Shop Drawings: Indicate dimensions, duct and service connections, accessories, controls, electrical nameplate data and wiring diagrams.

### 1.4 SUBMITTALS FOR INFORMATION

- A. Manufacturer's Instructions: Indicate rigging, assembly and installation instructions.

### 1.5 SUBMITTALS AT PROJECT CLOSEOUT

- A. Project Record Documents: Record actual locations of remote sensors, control panels and other components.
- B. Operation and Maintenance Data: Include manufacturer's operating instructions, installation instructions, maintenance data, and parts listing.
- C. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in owner's name and registered with the manufacturer.

### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section (proportional, building pressure controlling, modulating direct-fired air handler/air turnover unit) with a minimum of ten years documented experience. Equipment shall be the standard product of the manufacturer and shall have complete cataloged data.
- B. Installer Qualifications: All installation and service of direct fired air handlers must be performed by a contractor qualified in the installation and service of said products with proof of a minimum of three years documented experience.
- C. Factory Testing: Each air handler shall be factory-tested. Testing shall consist of checking all circuits for continuity, operability of all valves, control motors, fan speed, linkages, switches and burner. Each air handler shall be test-fired for minimum and high fire conditions. See "Fan and Motor" for additional fan testing requirements.

### 1.7 REGULATORY REQUIREMENTS

- A. Conform to ANSI Standards Z83.18 or Z83.4 (latest revision) and provide evidence that the air handler and its control system have been found in compliance with these standards by a nationally recognized testing laboratory.
- B. Conform to NFPA 90A.
- C. Conform to the National Fuel Gas Code (NFPA 54 / ANSI Z223.1).
- D. Conform to required or specified insurance specifications (FM, IRI, etc.) for the gas manifold construction.

## 1.8 WARRANTY

- A. The product shall have a manufacturer's limited warranty of at least 24 months, subject to the manufacturer's standard warranty limitations.

## 1.9 MAINTENANCE SERVICE

- A. Provide service and maintenance for each air handler for one year from Date of Substantial Completion.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. BANANZA® B-Series, incorporating one of the following outdoor air control schemes, as specified herein or shown on the plans:
- 20% - 100% outdoor air (AM Model)
  - 100% outdoor air (MUA Model)
  - 20% outdoor air (FR Model)
  - 100% outdoor air (SC Model)

### 2.2 MANUFACTURED UNITS

- A. *Unit:* [Constant] [Variable] volume [outdoor] [indoor] direct-fired air handler.

### 2.3 FABRICATION

- A. *Casing and Components:* Galvanized steel panels, minimum 20 gauge; reinforced with a rugged integral frame. Hinged and/or latched access doors to burner, fan, controls and motor.
- B. *Fan Support:* The fan and bearings shall be supported by a reinforced structural steel framework independent of the cabinet.
- C. *Access Doors:* Doors shall be provided to allow easy service of all critical components, controls and fan.
- D. *Outdoor Installation:* Units installed outdoors shall utilize weatherproof construction. Intake hood or plenum shall be used on horizontal units.
- E. *Lifting Points:* Internal members shall be properly sized to allow rigging and handling of the unit from the top.
- F. *Finish:* For Models B-650 — B-3000, standard finishes are unpainted galvanized or a heavy-duty white powder-coat. For Models B-4000 and B-5000, standard finishes are unpainted galvanized or a white waterbase, rust-inhibiting, machinery grade enamel.
- G. *Observation Port:* Provide on burner section for observing main and pilot flames.
- H. *Mixing Section (Optional):* The air handler shall incorporate a galvanized damper designed to deliver to 80% of the total air handler fan volume of either outdoor air or the return air from the building. This damper shall be controlled so as to provide an outdoor air turndown ratio of 5:1 based on the fan total flow rate.

### 2.4 BURNER AND GAS TRAIN

- A. *Burner:* Line burner specially designed to burn natural or propane gas at or below the non-contaminating levels required by ANSI and OSHA. The burner shall have a cast iron manifold and heat resistant Type 430 stainless steel burner plates. The burner shall have a nominal turndown ratio and be designed for 100% combustion efficiency for the life of the equipment.
- B. *Burner Profile:* The outdoor air velocity across the burner shall be controlled by fixed burner profile plates. The design of the unit profile plates shall maintain manufacturer's specified air velocity at all times over the burner during operation. No air from the occupied space shall be allowed to recirculate across the burner at any time.
- C. *Burner Assembly / Gas Train:* The burner assembly and fuel piping arrangement shall include automatic ignition controls, UV scanner flame failure system (not available on Model B-350), pressure regulator, fully modulating gas control valve, primary and secondary automatic shutoff valves and manual shutoff valve. Pilot gas controls shall include a pilot regulator, normally-closed solenoid shutoff valve, needle valve (FM and IRI manifolds only), and manual shutoff valve. Gas train shall be sized to provide full unit capacity at specified inlet pressure to the gas train. Provide and install a supplementary pressure regulator at each unit as necessary to maintain unit inlet pressure at less than 14" w.c.
- D. *Pilot:* Electric spark ignition through a high voltage ignition transformer.
- E. *Damper (Optional):* Motorized with end switch to prove position before burner will fire.

### 2.5 FAN AND MOTOR

- A. *Fan:* Built-in, double-width, double-inlet (DWDI), forward-curved type, dynamically balanced with pillow bearings and a rugged solid steel shaft ground smooth for extended life and durability.
- B. *Drive:* The fan shaft shall be connected to the motor by a single V-belt drive (Model B-350)/multiple V-belt drive (Models B-650 — B-5000) designed to handle 25% more power than the motor name plate capacity. The fan wheel and bearings shall be supported by reinforced structural steel framework independent of the unit housing. The motor sheave shall be an adjustable design balancing final air flow (Models B-350 — B-3000 only).
- C. *Fan Bearings:* Self-aligning, pillow block or flange type and shall have (for external static pressure less than 1" w.c.) an ABMA L10 rated life of 30,000 hours.
- D. *Motor:* The motor shall be an [ODP] [TEFC] [premium efficiency] design with minimum service factor of 1.15, wired for the selected voltage, 1750 rpm, standard NEMA frame and mounted on an adjustable slide base.
- E. *Sound Power:* The fan sound power shall not exceed 85 dBA at a distance of ten feet from the air handler discharge opening.

### 2.6 CONTROL SYSTEM

- A. *Factory Testing:* The complete control system and all burner and

gas manifold functions shall be factory tested for proper operation and to simplify field commissioning.

- B. Control Enclosure: The unit control enclosure shall be constructed to NEMA 3R specifications with a hinged door. The control enclosure shall contain the gas train and all principal electrical components, such as motor, motor starter, fused disconnect switch, 120 V and 24 V transformers, control circuit fuses, control relay(s), circuit check lights, pressure transducer, flame relay and full number-coded terminal strip.
- C. Flame Relay: The air handler control panel shall have a burner flame relay to lock out the flame in abnormal conditions.
- D. Safety Controls
1. High Gas Pressure (Optional on all ANSI Manifolds; standard on all FM and IRI Manifolds): The high gas pressure switch, located on the burner end of the manifold, shall turn the burner off when the gas pressure is above its setpoint. The maximum gas pressure shall be set to 1" w.c. above the maximum high fire gas pressure.
  2. Low Gas Pressure (Optional on all ANSI manifolds and B-350 — B-2000 FM manifolds; standard on B-3000 — B-5000 FM manifolds and all IRI Manifolds): The low gas pressure switch, located on the inlet end of the manifold, shall turn the burner off when the gas pressure is below its setpoint. The minimum gas pressure shall be set at 7" w.c.
  3. Air Flow: The air flow switch measures air pressure differential across the burner to assure proper air flow during burner operation and prior to ignition. It shall be factory set at approximately 0.2" w.c. for the low setting and where applicable 1.4" w.c. for B-350 — B-3000 and 0.9" w.c. for B-4000 — B-5000 for the high setting.
  4. High Temperature Limit: A manual reset high temperature switch shall turn the burner off when air is discharged above its set point. The High Temperature Limit Switch shall be factory set at 160° F (Models B-350 — B-3000) / 150° F (Models B-4000 and B-5000).
- E. Conventional Electronic Controls System:
1. Temperature Controller: Provide amplifier with room temperature control, room temperature sensor and discharge air temperature sensor.
  2. Pressure switch: Provide a null position pressure switch for controlling the mixing dampers.
  3. Pilot (Indicating) Lights (Optional): Install UL labeled lights in panel door (for indoor air handlers) or inside panel door (for outdoor air handlers) to indicate operation of control components as follows:
    - Power on
    - Low temperature limit switch
    - Power to fan starter
    - Fan on
    - High temperature limit switch
    - High gas pressure switch
    - Low gas pressure switch
    - Fan airflow switch
    - Ignition
    - Pilot valve
    - Power to valves
    - Power to temperature control

4. Remote Control Panel (One for Each Unit): Mount unit operating switches and pilot lights, as follows:
  - Solid state temperature control system, including occupied and unoccupied switches and room temperature thermostats.
  - Programmable electronic 7 day time clock with minimum of 4 on/off schedules per day and emergency battery power source (optional).
  - Remote burner reset control (optional).
  - Burner alarm horn with silence switch (optional).
  - ON/OFF/AUTO switch.
  - Pilot lights for Fan on/off and Burner on/off.
  - SUMMER/WINTER switch.

## 2.7 AIR HANDLER OPTIONS AVAILABLE [Select Applicable Options]

- A. Roof Curb: Each air handler shall have a full perimeter, 10" high curb (Models B-350 — B-3000) / 20" high curb (Models B-4000 and B-5000), formed of minimum 16-gauge galvanized steel as required to support the unit.
- B. Inlet Hood (Recommended for inlet velocities not exceeding 600 fpm at face of hood): The inlet hood shall mount on the outdoor air intake of the air handler and be constructed of galvanized sheet metal painted to match color of unit. Aluminum washable filters shall be provided on the face of the inlet hood.
- C. Insulation: The unit cabinet shall be lined with 1", 1.5 lb density, neoprene coated, glass fiber insulation, which complies with UL181 for erosion and NFPA 90A for fire resistivity. The insulation shall be secured via adhesive and mechanical pin fasteners per SMACNA standards. All exposed edges shall be coated.
- D. Discharge Head(s): The manufacturer shall provide a 3-way discharge head (Models B-350 and B-4000) / 1-way discharge head (Models B-4000 and B-5000) as detailed on the plans. The head shall include adjustable, locking, horizontal deflection blades for control of discharge airflow direction (optional vertical blades available). Where shown, the discharge head shall include motorized damper blades for remote control of the blade orientation.
- E. Discharge Plate: The plate shall be constructed of 16 gauge galvanized steel.
- F. Filter Status Indication: Each filter section is provided with a differential pressure switch and status indication.
- G. Outdoor Air Filter Section: The outdoor air (only) is filtered. All filters can be changed from a single location.
- H. Filters: 1" thick, treated on leaving side, linked polyester media. (Other filtration options available.)
- I. Service Platform (Available on Models B-4000 and B-5000 only): Each air handler shall be furnished with a minimum 46" deep service platform running the full width of the air handler. The platform shall be constructed with minimum 1" thick galvanized grating, an OSHA approved handrail on three sides and steel safety chains on the remaining side.
- J. Smoke Detector: An ionization type supply air smoke detector shall be provided which shuts off the air handler if smoke is detected.

## DIRECT FIRED AIR HANDLERS GUIDE SPECIFICATION

- K. Remote Reset: A remote switch shall allow personnel to reset the burner.
- L. Flame Relay: A self-checking UV scanner and diagnostic module.
- M. Interlocking Relay: Provided for field interface with remote devices.
- N. Carbon Dioxide (CO<sub>2</sub>) Detector: A room-mounted carbon dioxide sensor for initiating additional outdoor ventilation.
- O. NFPA 79 Wiring: All wiring to NFPA 79 standards.
- P. Additional NEMA Starters: As required by equipment schedules, mounted in control enclosure (fed by main air handler disconnect).
- Q. Support Channels: Formed or structural channels designed to adequately support the air handler and (if specified) service platform. These shall be furnished by the manufacturer. Hangers and miscellaneous hardware shall be furnished by the installing contractor.
- R. Marine Light: One light in each specified air handler section.

### 2.8 PERFORMANCE

- A. See Schedule on plans.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install equipment in strict accordance with manufacturer's instructions and in accordance with applicable governmental regulations by a contractor qualified in the installation of the manufacturer's product.
- B. Install per NFPA 90A.
- C. Install per NFPA 54 (ANSI Z223.1) by providing connection to fuel gas system.
- D. Units which are shipped in multiple sections shall be assembled on the job site by the installing contractor. Assembly includes caulking all seams weather tight and extending electrical power and network control wires to the terminals provided, reconnecting the motor and control wiring between sections to create a complete and operable installation (per air handler manufacturer's recommendations).
- E. Contractor shall extend pressure sensing tubes to inside and to outside of building as recommended by the air handler manufacturer.
- F. Contractor shall provide a proper gas service drip leg and a lockable, lever handle manual shutoff valve. A high pressure regulator shall be installed if manifold pressure will exceed 5 psig.
- G. Furnish Division 16 (Electrical) Contractor with field wiring diagram and electrical data to permit power wiring connections to the unit.
- H. Installation contractor is to provide equipment check, test and commissioning in strict accordance with manufacturer's instructions.
- I. Provide the owner's operating personnel with instruction on proper use of the air handler and controls.
- J. Contractor shall supply all necessary hanger rods and install the discharge head or plate (if provided) in accordance with manufacturer's instructions.
- K. Contractor shall level the roof curb and install a cant strip and wood nailer per applicable details on the plans.
- L. Install carbon monoxide / nitrogen dioxide sensors in the vicinity of the source contaminant (e.g., an operating vehicle), preferable at the breathing level of the occupants. Do not install sensors in confined ("dead") spaces.
- M. The air handler shall be either an upright or horizontal design as shown on the plans and designed to be supported (e.g., legs, suspension by rods, structural platform, etc.) as shown on the plans.
- N. Installation shall take place within three months following date of shipment of product by manufacturer.

### 3.2 SCHEDULES

- A. See plans.

# Thank You for Your Business!

---

**Installation Code and Annual Inspections:**

All installations and service of BANANZA® products must be performed by a contractor qualified in the installation and service of products sold and supplied by Bananza and conform to all requirements set forth in the BANANZA® manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment. To help facilitate optimum performance and safety, Bananza recommends that a qualified contractor annually inspect your BANANZA® products and perform service where necessary, using only BANANZA® replacement parts.

**Further Information:** Applications, engineering and detailed guidance on system design, installation and product performance is available through BANANZA® representatives. Please contact us for any further information you may require, including the Installation, Operation and Service Manual.

**This product is not for residential use.**

This document is intended to assist licensed professionals in the exercise of their professional judgement.

**Bananza**

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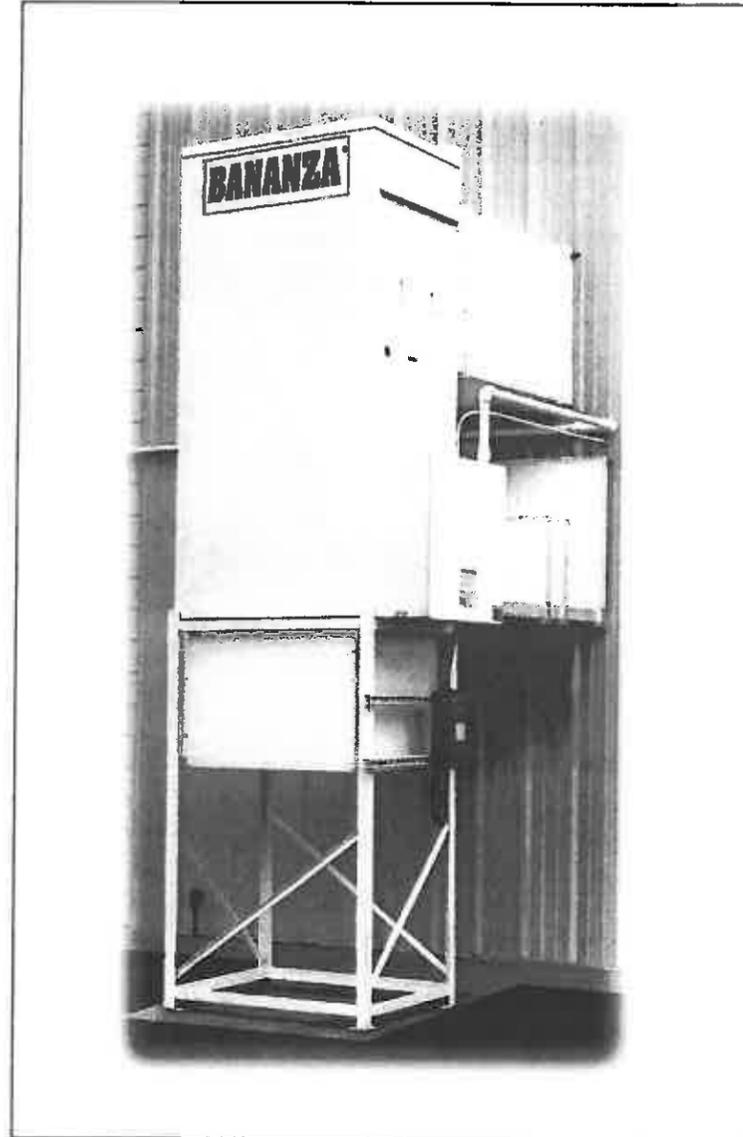
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# BANANZA

## **BANANZA® B-Series**

### **Direct-Fired Heating, Cooling and Ventilation Systems**

- Improved indoor air quality – Helps dilute and expel airborne contaminants making exhaust systems operate more efficiently.
- Superior ventilation – System can be designed to automatically modulate outdoor air volume from 20% to 100% to meet ventilation requirements in cold weather and decrease heat buildup in warm weather.
- Consistent temperatures and less stratification – Optional cooling effectively reduces indoor air temperatures to help keep people and processes productive.
- Cost savings – Heating systems deliver 100% of the heat generated into the building resulting in energy savings.
- Flexibility and convenience – Heating systems require little to no ductwork and can be installed indoors or outdoors.
- Evaporative and mechanical cooling packages available.



**1-800-255-3416**

# BANANZA® B-Series

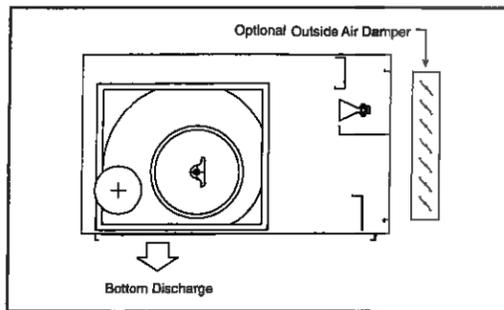
**BANANZA® B-Series air handlers improve indoor air quality and provide air comfort.**

BANANZA® B-Series air handlers can be designed to efficiently establish and maintain a slightly pressurized condition in your facility as outdoor air is gently tempered and, as required, mixed with existing indoor air.

NOTE: All models are available in upright or horizontal as well as indoor or outdoor configurations.

| Model | B-350         | B-650          | B-1000         | B-2000          | B-3000          | B-4000          | B-5000          |
|-------|---------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| CFM   | 1,000 - 4,000 | 4,000 - 10,000 | 7,000 - 14,000 | 12,000 - 25,000 | 25,000 - 40,000 | 35,000 - 47,500 | 45,000 - 60,000 |

## Model Configurations

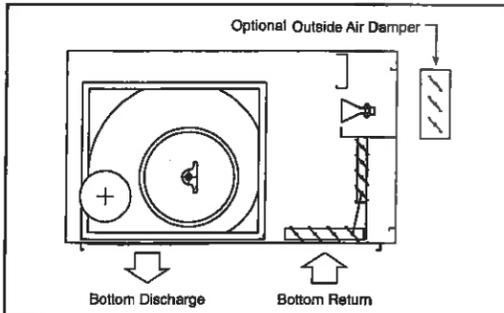


### Make-Up Air (MUA) Models

**Design:** 100% replacement air with a fixed discharge air volume.

**Function:** Supplies direct replacement air for building mechanical exhaust.

**Application:** Used as make-up air for industrial processes which incorporate mechanical exhaust.



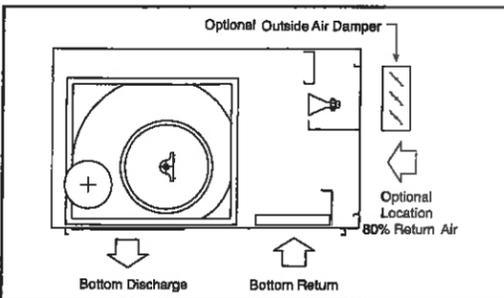
### Air Management (AM) Models

(Not available on Model B-350)

**Design:** Variable outdoor air from 20% to 100% and a modulating burner with a 30:1 turn-down ratio. Discharge air volume is fixed.

**Function:** Automatically responds to building pressure and temperature needs.

**Application:** Used in industrial and commercial buildings that have air quality and specific air management requirements.



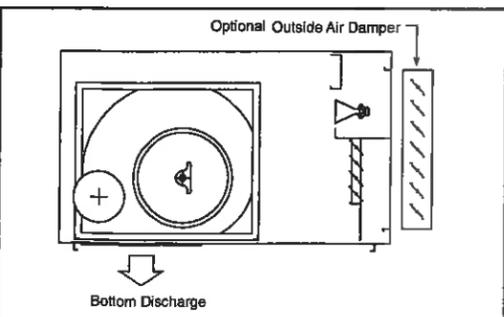
### Fixed Recirculation (FR) Models

(Not available on Model B-350)

**Design:** Fixed 80% air turnover rate and 20% outdoor air replacement rate. Discharge air volume is fixed.

**Function:** Provides efficient, low-cost heating where minimum ventilation rates are required.

**Application:** Used in warehouses, distribution centers, retail outlets, etc.



### Spray-Cure™ (SC) Models

(Not available on Model B-350)

**Design:** Discharge air volume is variable.

**Function:** Supplies direct replacement air for spray booth mechanical exhaust.

**Application:** Used as make-up air for paint booths.

# BANANZA® B-Series Features

---

## Reliable, Efficient System Operation Provided by:

- 30:1 fully modulating burner that maintains 100% combustion efficiency.
- Double-width, double-inlet, forward-curved centrifugal fan built for long life.
- Energy-saving ignition system.
- System that puts 100% of the available heat in the airstream, not out a flue.
- Unit that uses up to 50% less energy.
- Remote Control Panel for easy operation and remote temperature adjustment.
- Electronic fuel modulation providing immediate response.
- UV scanner for excellent reliability and durability on Models B-650 — B-5000.
- Temperature dial for quick, easy adjustment.
- Operation of fan only in warm weather to enjoy free ventilation cooling.
- Compliance to ETL per ANSI Z83.18 or Z83.4 standards.
- Industry-leading 80-point checklist to help facilitate trouble-free startup.

## Ease of Maintenance Provided by:

- Large access panel for easy maintenance of blower, motor, drives and burner.
- Blower installed downstream of burner for convenient access.

## Other B-Series Options:

- 10" or 20" Roof Curb simplifies rooftop mounting.
- Inlet Hood protects against water entrainment.
- Filter Section with polylink or aluminum filters for longer equipment life of internal components.
- Motorized Inlet Damper for exfiltration control.
- FM/IRI approved gas trains.
- Upright heater stand or legs of varying heights.

## B-Series Conventional Controls' Options:

- Low-temperature automatic shutdown.
- Space temperature control for added comfort.
- 7-day time clock.
- Remote Control Panel with burner and blower switches for easy operation.
- Mild weather stat.

## Long Lasting Construction Provided by:

- Heavy-duty, corrosion-resistant, galvanized steel construction.
- Sturdy, integral frame that is screwed and bolted together for durability and longer service life.
- Unpainted galvanized steel or white finishes available.
- Heavy-duty, factory-installed motor and drive package designed for long-lasting, performance.
- Heavy-duty, pre-lubricated bearings provide up to 30,000 hours of ABMA L-10 performance.

# BANANZA® B-Series Optional Cooling Packages

---

## Evaporative Cooling

BANANZA® B-Series evaporative cooling system is an economical solution. It requires no air-cooled condenser, no chiller or cooling tower, no chilled water pumps or distribution piping/insulation, no major motor control center or electrical gear. Operating costs are a fraction of similar-capacity mechanical refrigeration systems.

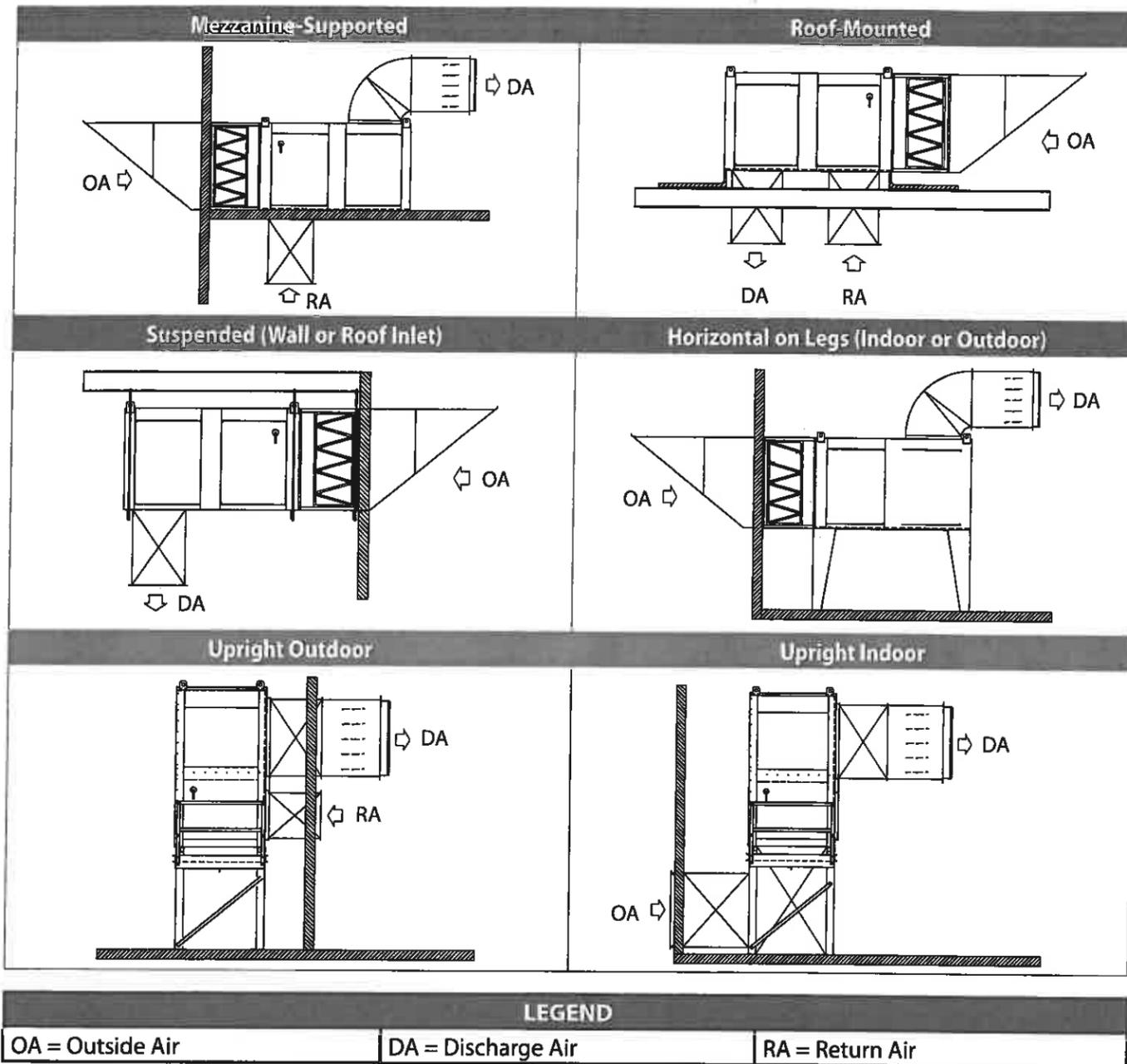
Evaporative cooling works when warm air passes over specially treated wetted media. The heat passes from the air to the wetted media, causing the water to evaporate and inside air to cool.

## Mechanical Cooling

For situations requiring temperature and humidity levels lower than the performance parameters available with outdoor air alone or with evaporative cooling, BANANZA® B-Series offer a broad range of cooling options.

Cooling options can be added by simply installing one of our coil sections equipped with the appropriate cooling coils and a condensing unit or chiller. The versatility afforded by the coil section enables you to utilize DX refrigerant, chilled water or other types of cooling coils in your system.

# Typical Installations



## Banza

1100 Seven Mile Road NW  
 Comstock Park, MI 49321  
 Telephone: 616.726.8800  
 Toll Free: 800.255.3416  
 Fax: 616.726.8807

[www.banza.com](http://www.banza.com)

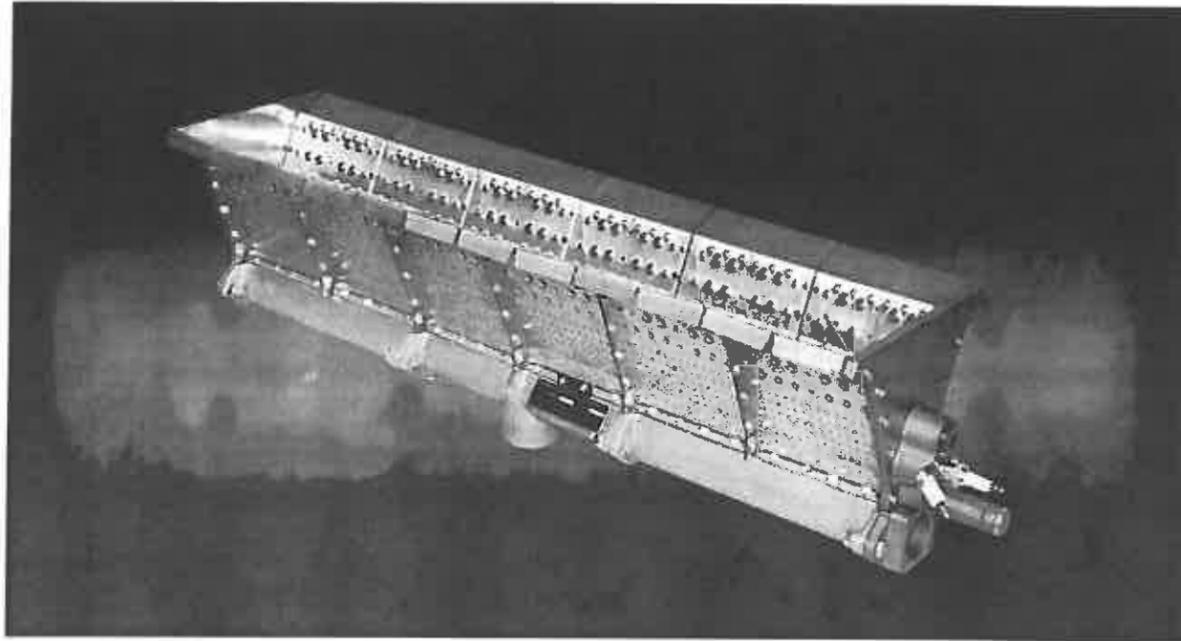
### Installation Code and Annual Inspections:

All installations and service of BANANZA® products must be performed by a contractor qualified in the installation and service of products sold and supplied by Bananza and conform to all requirements set forth in the Bananza manuals and all applicable governmental authorities pertaining to the installation, service and operation of the equipment. To help facilitate optimum performance and safety, Bananza recommends that a qualified contractor annually inspect your BANANZA® products and perform service where necessary, using only BANANZA® replacement parts.

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## Series NP-LE AIRFLO®

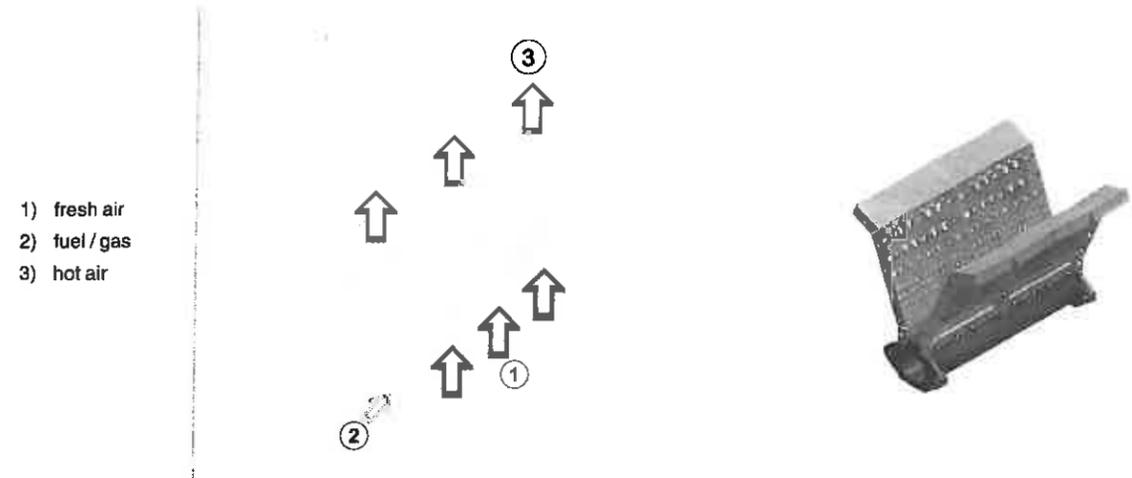
In-duct firing line burner



- Designed for direct-fired make-up air and process applications
- Improved emissions performance over MAXON's standard "NP" AIRFLO® Burner, with significantly lower levels of CO and NO<sub>2</sub>
- High capacity - up to 1,000,000 Btu/h/ft
- Short flame length
- Available in low pressure version and corrosion-resistant materials

## Product description

### NP-LE AIRFLO® principle



MAXON Series NP-LE AIRFLO® burners consist of a robust cast-iron or aluminum burner body (which serves as the gas manifold) drilled to discharge the gaseous fuel between diverging stainless steel mixing plates.

The burners are mounted directly into the air stream being heated. Gaseous fuel is injected into the process air stream. The unique designed V-shaped burner mixing plates are intimately mixing both gas and process air together.

All available heat from the gaseous fuel is released directly into the air stream.

The required oxygen for the combustion is progressively drawn from the process air stream.

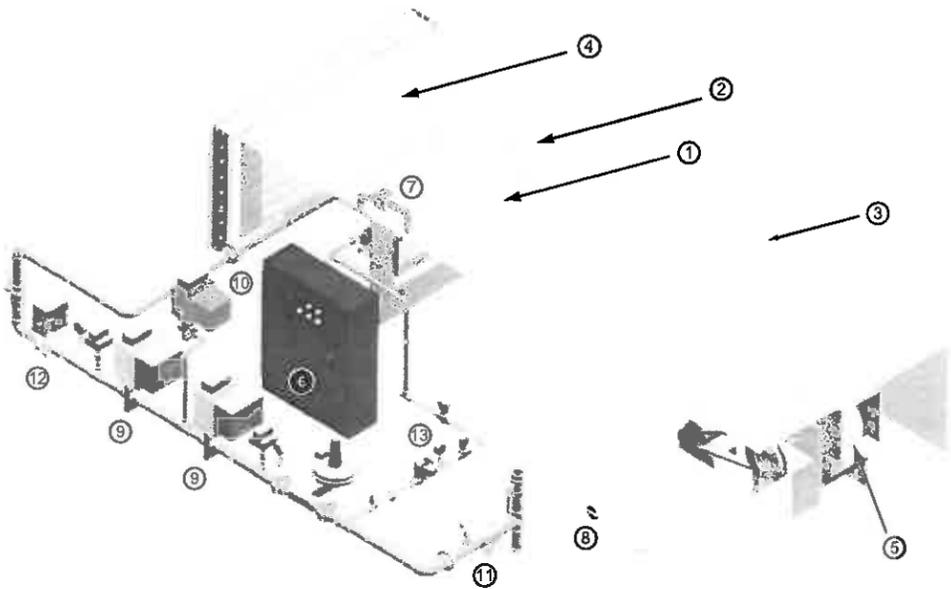
Carefully controlled aeration patterns provide progressive mixing, superior cross-ignition, flame retention and odor-free combustion.

Air velocities across the burner (the key to successful operation) are established by the use of profile plates.

Optimum performance demands that air velocities be uniform across the entire burner.

System components normally used in conjunction with a MAXON NP-LE AIRFLO® burner application

- 1) AIRFLO® burner
- 2) profile plate
- 3) combustion chamber
- 4) intake louvers
- 5) main volume fan
- 6) sequencing control panel
- 7) differential air pressure switch
- 8) high temperature protection
- 9) safety shut-off valves
- 10) vent valve
- 11) gas filter
- 12) control valve
- 13) pilot gas train



## Available product sizes

### For make-up air heating

For fresh, ambient air heating, the NP1-LE and NP2-LE AIRFLO® burner types provide a nominal capacity of 1.0 MBtu/h per foot with a turndown of 30:1. NP2-LE AIRFLO® burners are selected when gas supply pressures are too low for NP1-LE burners.

### For process air heating

NP1-LE and NP2-LE AIRFLO® burners may be used if temperature rise does not exceed 760°F. Upstream process air temperatures should not exceed 600°F. Downstream temperatures should be limited to 1000°F.

NP1-LE and NP2-LE AIRFLO® burners can be supplied with special aluminum alloy bodies for corrosive applications. The use of aluminum alloy bodies limits the maximum allowed upstream process air temperature to 445°F. Downstream temperature should not exceed 840°F.

### Materials of construction

NP1-LE AIRFLO® burners are available in three material choices:

- Standard - cast iron body and end plates
- AL - aluminum body with cast iron end plates
- ALSS - aluminum body and back-up bars, nickel plated end plates, stainless steel fasteners

NP2-LE AIRFLO® burners are available in two material choices:

- Standard - cast iron body and end plates
- AL - aluminum body with cast iron end plates

| Typical burner data                                                                                                       |       |                                 |             |
|---------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------|-------------|
| Fuel: natural gas at 60°F with 1000 Btu/ft <sup>3</sup> (st) HHV - sg = 0.6 [1]                                           |       |                                 |             |
| Combustion air: 60°F - 21% O <sub>2</sub> - 50% humidity - sg = 1.0 [1]                                                   |       |                                 |             |
| Stated pressures are indicative. Actual pressures are a function of air humidity, altitude, type of fuel and gas quality. |       |                                 |             |
| Burner size                                                                                                               |       | NP1-LE                          | NP2-LE      |
| Maximum capacity per foot [2]                                                                                             | Btu/h | 1,000,000                       | 1,000,000   |
| Minimum capacity per foot [3]                                                                                             | Btu/h | 25,000                          | 25,000      |
| Natural gas pressure required [2]                                                                                         | "wc   | 12.8                            | 6.1         |
| Flame length [2]                                                                                                          | in    | 6 - 28                          | 6 - 28      |
| Air velocity required [4]                                                                                                 | fpm   | 1700 - 3000                     | 1700 - 3000 |
| Pressure drop process air [4]                                                                                             | "wc   | 0.3 - 1.0                       | 0.3 - 1.0   |
| Turndown                                                                                                                  |       | 30:1                            | 30:1        |
| Fuel gas                                                                                                                  |       | natural gas, propane and butane |             |

[1] sg (specific gravity) = relative density to air (density air = 0.0763 lb/ft<sup>3</sup> (st))

[2] Higher gas pressure will result in higher heat release per unit and longer flame length. Contact MAXON for more information and performance limits in your particular application. Also see note [3].

[3] Absolute minimum capacity at optimal air flow (velocity and distribution). Minimum capacity influenced by air velocity and burner application. Contact MAXON for your specific installation.

[4] Air velocity for optimal burner performance. The burner will be able to operate within a given range of air velocity. The higher the velocity at a given gas pressure, the shorter the flame length, and the higher the pressure differential of the process air across the burner.

**Applications**

Series NP-LE AIRFLO® burners are designed for direct heating of fresh, clean air for low and medium temperature air heating applications.

Typical low temperature applications include humidity-controlled dual stage paint, spray booths, general make-up air applications, packaged units, door heaters, grain drying, malt drying, etc.

Typical high temperature process air applications include spray dryers, chemical dryers, fresh air oven heating, drying, baking and curing operations, metal parts finishing and all fresh air heating applications up to 1000°F .

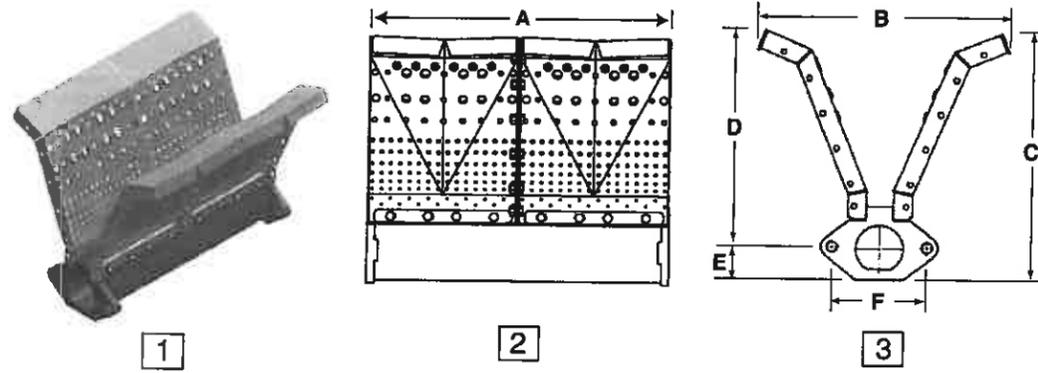
These burners can also be mounted downstream of a steam or hot water coil thus bringing the air to a higher temperature. This can boost the capacity of an existing installation.



**Direct air heating with NP-LE AIRFLO® burners in continuous flow dryers for grain**

**Dimensions and weights**

- 1) NP1-LE AIRFLO® burner
- 2) NP-LE 12" straight section
- 3) Typical end view



| Dimensions in inches unless stated otherwise |      |      |     |     |     |     |            |
|----------------------------------------------|------|------|-----|-----|-----|-----|------------|
| Burner type                                  | A    | B    | C   | D   | E   | F   | Weight lbs |
| NP-LE AIRFLO® burner                         | 12.0 | 10.0 | 9.9 | 8.6 | 1.3 | 3.8 | 8          |

**Typical emissions (burners only)**

MAXON Series NP-LE AIRFLO® burners are especially designed to meet the high demands of most of the local standards on air quality of direct fired make-up air and space heating applications worldwide.

If correctly used within the performance limits as described on page 4-21.6-4, both CO and NO<sub>x</sub> will remain far below the limits as determined in most standards.

Note that incorrect use or use outside the performance limits may seriously affect emissions.

Exact emissions performance may vary in your application. Contact MAXON for information on installation-specific estimates or guarantees. No guarantee of emissions is intended or implied without specific written guarantee from MAXON.

Read "Specifications of NP-LE AIRFLO® burners" for complete information on these burner types.

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): SB-2

|                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Name or type and model of proposed affected source:</p> <p>Autek Side Down Draft Paint Spray Booth Model # SD24-123; Serial # Autek 14-1015</p>                                                                                                                                      |
| <p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p> |
| <p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>various coatings and aircraft parts</p>                                                                                                                                                          |
| <p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>various painted aircraft parts</p>                                                                                                                                                                      |
| <p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p>                                                                                                                                                                               |

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

|                                                                                                                           |    |            |       |
|---------------------------------------------------------------------------------------------------------------------------|----|------------|-------|
| 6. Combustion Data (if applicable):                                                                                       |    |            |       |
| (a) Type and amount in appropriate units of fuel(s) to be burned:                                                         |    |            |       |
| NA                                                                                                                        |    |            |       |
| (b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:                      |    |            |       |
| NA                                                                                                                        |    |            |       |
| (c) Theoretical combustion air requirement (ACF/unit of fuel):                                                            |    |            |       |
|                                                                                                                           | @  | °F and     | psia. |
| (d) Percent excess air:                                                                                                   |    |            |       |
| (e) Type and BTU/hr of burners and all other firing equipment planned to be used:                                         |    |            |       |
| NA                                                                                                                        |    |            |       |
| (f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired: |    |            |       |
| NA                                                                                                                        |    |            |       |
| (g) Proposed maximum design heat input: <span style="float: right;">× 10<sup>6</sup> BTU/hr.</span>                       |    |            |       |
| 7. Projected operating schedule:                                                                                          |    |            |       |
| Hours/Day                                                                                                                 | 24 | Days/Week  | 7     |
|                                                                                                                           |    | Weeks/Year | 8760  |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

| @                      | ambient | °F and | ambient | psia       |
|------------------------|---------|--------|---------|------------|
| a. NO <sub>x</sub>     |         | lb/hr  |         | grains/ACF |
| b. SO <sub>2</sub>     |         | lb/hr  |         | grains/ACF |
| c. CO                  |         | lb/hr  |         | grains/ACF |
| d. PM <sub>10</sub>    |         | lb/hr  |         | grains/ACF |
| e. Hydrocarbons        |         | lb/hr  |         | grains/ACF |
| f. VOCs                | 14.58   | lb/hr  |         | grains/ACF |
| g. Pb                  |         | lb/hr  |         | grains/ACF |
| h. Specify other(s)    |         |        |         |            |
| Styrene                | 3.13    | lb/hr  |         | grains/ACF |
| Xylenes                | 1.43    | lb/hr  |         | grains/ACF |
| Methyl Isobutyl Ketone | 0.99    | lb/hr  |         | grains/ACF |
| Total HAPs             | 5.62    | lb/hr  |         | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

|            |               |
|------------|---------------|
| MONITORING | RECORDKEEPING |
| REPORTING  | TESTING       |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

**Attachment L  
EMISSIONS UNIT DATA SHEET  
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): GB-1

|                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Name or type and model of proposed affected source:</p> <p>Autek Open Face Booth 12' W Model # OF14-125; Serial # Autek 14-1017</p>                                                                                                                                                  |
| <p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p> |
| <p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>various adhesives for interior aircraft parts</p>                                                                                                                                                |
| <p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>various interior aircraft parts</p>                                                                                                                                                                     |
| <p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p>                                                                                                                                                                               |

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

|                                                                                                                           |        |           |
|---------------------------------------------------------------------------------------------------------------------------|--------|-----------|
| 6. Combustion Data (if applicable):                                                                                       |        |           |
| (a) Type and amount in appropriate units of fuel(s) to be burned:                                                         |        |           |
| Not Applicable                                                                                                            |        |           |
| (b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:                      |        |           |
| NA                                                                                                                        |        |           |
| (c) Theoretical combustion air requirement (ACF/unit of fuel):                                                            |        |           |
| @                                                                                                                         | °F and | psia.     |
| (d) Percent excess air:                                                                                                   |        |           |
| (e) Type and BTU/hr of burners and all other firing equipment planned to be used:                                         |        |           |
| NA                                                                                                                        |        |           |
| (f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired: |        |           |
| NA                                                                                                                        |        |           |
| (g) Proposed maximum design heat input: <span style="float: right;">× 10<sup>6</sup> BTU/hr.</span>                       |        |           |
| 7. Projected operating schedule:                                                                                          |        |           |
| Hours/Day                                                                                                                 | 12     | Days/Week |
|                                                                                                                           |        | 5         |
| Weeks/Year                                                                                                                | 52     |           |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

| @                   | ambient | °F and | ambient | psia       |
|---------------------|---------|--------|---------|------------|
| a. NO <sub>x</sub>  |         | lb/hr  |         | grains/ACF |
| b. SO <sub>2</sub>  |         | lb/hr  |         | grains/ACF |
| c. CO               |         | lb/hr  |         | grains/ACF |
| d. PM <sub>10</sub> |         | lb/hr  |         | grains/ACF |
| e. Hydrocarbons     |         | lb/hr  |         | grains/ACF |
| f. VOCs             | 2.72    | lb/hr  |         | grains/ACF |
| g. Pb               |         | lb/hr  |         | grains/ACF |
| h. Specify other(s) |         |        |         |            |
| n-Hexane            | 0.68    | lb/hr  |         | grains/ACF |
| Toluene             | 0.24    | lb/hr  |         | grains/ACF |
|                     |         | lb/hr  |         | grains/ACF |
|                     |         | lb/hr  |         | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

|            |               |
|------------|---------------|
| MONITORING | RECORDKEEPING |
| REPORTING  | TESTING       |

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): SaB-1

|                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Name or type and model of proposed affected source:</p> <p>Autek Open Face Booth 14' W Model # OF14-124; Serial # Autek 14-1016</p>                                                                                                                                                  |
| <p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p> |
| <p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>various interior aircraft parts</p>                                                                                                                                                              |
| <p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>various interior aircraft parts</p>                                                                                                                                                                     |
| <p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p>                                                                                                                                                                               |

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

|                                                                                                                           |    |            |       |
|---------------------------------------------------------------------------------------------------------------------------|----|------------|-------|
| 6. Combustion Data (if applicable):                                                                                       |    |            |       |
| (a) Type and amount in appropriate units of fuel(s) to be burned:                                                         |    |            |       |
| Not Applicable                                                                                                            |    |            |       |
| (b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:                      |    |            |       |
| NA                                                                                                                        |    |            |       |
| (c) Theoretical combustion air requirement (ACF/unit of fuel):                                                            |    |            |       |
|                                                                                                                           | @  | °F and     | psia. |
| (d) Percent excess air:                                                                                                   |    |            |       |
| (e) Type and BTU/hr of burners and all other firing equipment planned to be used:                                         |    |            |       |
| NA                                                                                                                        |    |            |       |
| (f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired: |    |            |       |
| NA                                                                                                                        |    |            |       |
| (g) Proposed maximum design heat input: <span style="float: right;">× 10<sup>6</sup> BTU/hr.</span>                       |    |            |       |
| 7. Projected operating schedule:                                                                                          |    |            |       |
| Hours/Day                                                                                                                 | 12 | Days/Week  | 5     |
|                                                                                                                           |    | Weeks/Year | 52    |

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

| @  | ambient          | °F and | ambient | psia       |
|----|------------------|--------|---------|------------|
| a. | NO <sub>x</sub>  |        | lb/hr   | grains/ACF |
| b. | SO <sub>2</sub>  |        | lb/hr   | grains/ACF |
| c. | CO               |        | lb/hr   | grains/ACF |
| d. | PM <sub>10</sub> | 1      | lb/hr   | grains/ACF |
| e. | Hydrocarbons     |        | lb/hr   | grains/ACF |
| f. | VOCs             |        | lb/hr   | grains/ACF |
| g. | Pb               |        | lb/hr   | grains/ACF |
| h. | Specify other(s) |        | lb/hr   | grains/ACF |
|    |                  |        | lb/hr   | grains/ACF |
|    |                  |        | lb/hr   | grains/ACF |
|    |                  |        | lb/hr   | grains/ACF |

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING

RECORDKEEPING

REPORTING

TESTING

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

# *Autek Spray Booths Inc.*

---

*6154 – 126<sup>th</sup> Ave North  
Largo, FL 33773*

*P.O. Box 1983  
Palm Harbor, FL 34682*

*www.autek.us  
727-709-4373  
Fax 727-772-1185*

*10/10/2014*

## *Spray Booth Quote*

*Bombardier Aerospace  
2400 Aviation Way  
Bridgeport, WV 26330*

### *Autek Side Down Draft Paint Spray Booth*

*24'L x 18'W x 11'H (OSD)*

*24'L x 13'W x 9"H (ISD)*

- *Bright White Powder Coated Panels*
- *18 gauge Galvanized steel panels w/ 4"x 6" I-Beam support Structure*
- *10'W x 9'H Solid Entrance Doors w/ Observation windows*
- *3' x 7' Personnel Door w/ Observation window*
- *2 – 24" tube axial exhaust fans w/ 2hp 3pz motors 14,600CFM @0.125sp*
- *11 – 4 tube 48" light fixtures w/ Clear tempered Glass*
- *2 – Sets of 24" x 26' Exhaust Duct package*
- *All Fasteners / gaskets / filters / hardware*

### *Banza Heated Air Make-Up unit*

- *10 hp Motor 14,000.00 CFM*
- *1.5 MBTUH*
- *Deluxe Remote control panel*
- *Variable Frequency Drive w/ Profile Dampener*
- *Duct from Banza AMU outside of building to Booth intake plenum*
- *Stand and Filter Box*

***Autek Open Face Industrial Paint Spray Booth  
Bright White Powder Coated Panels***

- *14'W x 8'H x 12'D (ISD) 15'D (OSD)*
- *3 – 4 tube 48" light fixtures*
- *30" tube axial fan w/ 2hp 3pz motor*
- *All fasteners / Filters / Sealants*
- *1 – 30" - 90 Degree Elbow*
- *10' x 30" Spiral duct*

***Autek Open Face Industrial Paint Spray Booths  
12'W x 8'H x 8'D (ISD) 11'D(OSD)***

***Bright White Powder Coated Panels***

- *3 – 4 tube 48" light fixtures*
- *24' tube axial fan w/ 2hp 3pz motor*
- *All Fasteners / Filters / Sealants*
- *3 – 24" – 90 degree elbows*
- *10' x 24" Spiral Duct*

***Tom Kimball  
Autek Spray Booths Inc.  
727-709-4373***

**Attachment M**  
**Air Pollution Control Device Sheet**  
 (OTHER COLLECTORS)

Control Device ID No. (must match Emission Units Table): SB-2C

**Equipment Information**

|                                                                                                                                                                                                                     |                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1. Manufacturer: AAF International<br>Model No. 22 Gr Paint Arrestor                                                                                                                                                | 2. Control Device Name:<br>Type: filter |
| 3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency. |                                         |
| 4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.                                                                                                   |                                         |
| 5. Provide a scale diagram of the control device showing internal construction.                                                                                                                                     |                                         |
| 6. Submit a schematic and diagram with dimensions and flow rates.                                                                                                                                                   |                                         |
| 7. Guaranteed minimum collection efficiency for each pollutant collected: 99%                                                                                                                                       |                                         |
| 8. Attached efficiency curve and/or other efficiency information.                                                                                                                                                   |                                         |
| 9. Design inlet volume: 14,600 SCFM                                                                                                                                                                                 | 10. Capacity:                           |
| 11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.<br><br>Not Applicable                                                                             |                                         |
| 12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA                                                                                 |                                         |
| 13. Description of method of handling the collected material(s) for reuse or disposal. Filters replaced per manufacturer's guidelines. Disposal will be in accordance with acceptable waste handling procedures.    |                                         |

**Gas Stream Characteristics**

|                                       |                                         |                                        |  |
|---------------------------------------|-----------------------------------------|----------------------------------------|--|
| 14. Are halogenated organics present? | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |  |
| Are particulates present?             | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |  |
| Are metals present?                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |  |
| 15. Inlet Emission stream parameters: | <b>Maximum</b>                          | <b>Typical</b>                         |  |
| Pressure (mmHg):                      |                                         |                                        |  |
| Heat Content (BTU/scf):               |                                         |                                        |  |
| Oxygen Content (%):                   |                                         |                                        |  |
| Moisture Content (%):                 |                                         |                                        |  |
| Relative Humidity (%):                |                                         |                                        |  |

|                                                                                                                                                                                                             |                                                                        |                   |                      |                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------|----------------------|-------------------|
| 16. Type of pollutant(s) controlled: <input type="checkbox"/> SO <sub>x</sub> <input type="checkbox"/> Odor<br><input checked="" type="checkbox"/> Particulate (type): paint <input type="checkbox"/> Other |                                                                        |                   |                      |                   |
| 17. Inlet gas velocity: _____ ft/sec                                                                                                                                                                        | 18. Pollutant specific gravity:                                        |                   |                      |                   |
| 19. Gas flow into the collector:<br>14,600 ACF @ _____ °F and<br>PSIA                                                                                                                                       | 20. Gas stream temperature:<br>Inlet: ambient °F<br>Outlet: ambient °F |                   |                      |                   |
| 21. Gas flow rate:<br>Design Maximum: _____ ACFM<br>Average Expected: _____ ACFM                                                                                                                            | 22. Particulate Grain Loading in grains/scf:<br>Inlet:<br>Outlet:      |                   |                      |                   |
| 23. Emission rate of each pollutant (specify) into and out of collector:                                                                                                                                    |                                                                        |                   |                      |                   |
| <b>Pollutant</b>                                                                                                                                                                                            | <b>IN Pollutant</b>                                                    | <b>Emission</b>   | <b>OUT Pollutant</b> | <b>Control</b>    |
|                                                                                                                                                                                                             | <b>tpy</b>                                                             | <b>Capture</b>    | <b>tpy</b>           | <b>Efficiency</b> |
|                                                                                                                                                                                                             | <b>grains/acf</b>                                                      | <b>Efficiency</b> | <b>grains/acf</b>    | <b>%</b>          |
|                                                                                                                                                                                                             |                                                                        | <b>%</b>          |                      |                   |
| A PM                                                                                                                                                                                                        | 0.019                                                                  |                   | 0.00019              | 99                |
| B                                                                                                                                                                                                           |                                                                        |                   |                      |                   |
| C                                                                                                                                                                                                           |                                                                        |                   |                      |                   |
| D                                                                                                                                                                                                           |                                                                        |                   |                      |                   |
| E                                                                                                                                                                                                           |                                                                        |                   |                      |                   |
| 24. Dimensions of stack: _____ Height _____ ft. _____ Diameter _____ ft.                                                                                                                                    |                                                                        |                   |                      |                   |
| 25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector.                                                                           |                                                                        |                   |                      |                   |

**Particulate Distribution**

| 26. Complete the table:<br>Particulate Size Range (microns) | Particle Size Distribution at Inlet to Collector | Fraction Efficiency of Collector |
|-------------------------------------------------------------|--------------------------------------------------|----------------------------------|
|                                                             | Weight % for Size Range                          | Weight % for Size Range          |
| 0 - 2                                                       |                                                  |                                  |
| 2 - 4                                                       |                                                  |                                  |
| 4 - 6                                                       |                                                  |                                  |
| 6 - 8                                                       |                                                  |                                  |
| 8 - 10                                                      |                                                  |                                  |
| 10 - 12                                                     |                                                  |                                  |
| 12 - 16                                                     |                                                  |                                  |
| 16 - 20                                                     |                                                  |                                  |
| 20 - 30                                                     |                                                  |                                  |
| 30 - 40                                                     |                                                  |                                  |
| 40 - 50                                                     |                                                  |                                  |
| 50 - 60                                                     |                                                  |                                  |
| 60 - 70                                                     |                                                  |                                  |
| 70 - 80                                                     |                                                  |                                  |
| 80 - 90                                                     |                                                  |                                  |
| 90 - 100                                                    |                                                  |                                  |
| >100                                                        |                                                  |                                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |
| 28. Describe the collection material disposal system:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |
| 29. Have you included <b>Other Collectors Control Device</b> in the Emissions Points Data Summary Sheet? Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |
| <b>30. Proposed Monitoring, Recordkeeping, Reporting, and Testing</b><br>Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.                                                                                                                                                                                                                                                                                    |                |
| MONITORING:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | RECORDKEEPING: |
| REPORTING:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TESTING:       |
| <b>MONITORING:</b> Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.<br><b>RECORDKEEPING:</b> Please describe the proposed recordkeeping that will accompany the monitoring.<br><b>REPORTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device.<br><b>TESTING:</b> Please describe any proposed emissions testing for this process equipment on air pollution control device. |                |
| 31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |
| 32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |
| 33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |

**Attachment M**  
**Air Pollution Control Device Sheet**  
 (OTHER COLLECTORS)

Control Device ID No. (must match Emission Units Table):GB-1C

**Equipment Information**

|                                                                                                                                                                                                                     |                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1. Manufacturer: AAF International<br>Model No. 22 Gr Paint Arrestor                                                                                                                                                | 2. Control Device Name:<br>Type: filter |
| 3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency. |                                         |
| 4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.                                                                                                   |                                         |
| 5. Provide a scale diagram of the control device showing internal construction.                                                                                                                                     |                                         |
| 6. Submit a schematic and diagram with dimensions and flow rates.                                                                                                                                                   |                                         |
| 7. Guaranteed minimum collection efficiency for each pollutant collected: 99%                                                                                                                                       |                                         |
| 8. Attached efficiency curve and/or other efficiency information.                                                                                                                                                   |                                         |
| 9. Design inlet volume: 14,600 SCFM                                                                                                                                                                                 | 10. Capacity:                           |
| 11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.<br><br>Not Applicable                                                                             |                                         |
| 12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA                                                                                 |                                         |
| 13. Description of method of handling the collected material(s) for reuse or disposal. Filters replaced per manufacturer's guidelines. Disposal will be in accordance with acceptable waste disposal procedures.    |                                         |

**Gas Stream Characteristics**

|                                       |                                         |                                        |  |
|---------------------------------------|-----------------------------------------|----------------------------------------|--|
| 14. Are halogenated organics present? | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |  |
| Are particulates present?             | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |  |
| Are metals present?                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |  |
| 15. Inlet Emission stream parameters: | <b>Maximum</b>                          | <b>Typical</b>                         |  |
| Pressure (mmHg):                      |                                         |                                        |  |
| Heat Content (BTU/scf):               |                                         |                                        |  |
| Oxygen Content (%):                   |                                         |                                        |  |
| Moisture Content (%):                 |                                         |                                        |  |
| Relative Humidity (%):                |                                         |                                        |  |

16. Type of pollutant(s) controlled:  SO<sub>x</sub>  Odor  
 Particulate (type): paint  Other

17. Inlet gas velocity: \_\_\_\_\_ ft/sec

18. Pollutant specific gravity: \_\_\_\_\_

19. Gas flow into the collector: 14,600 ACF @ \_\_\_\_\_ °F and \_\_\_\_\_ PSIA

20. Gas stream temperature: Inlet: ambient °F  
 Outlet: ambient °F

21. Gas flow rate: Design Maximum: \_\_\_\_\_ ACFM  
 Average Expected: \_\_\_\_\_ ACFM

22. Particulate Grain Loading in grains/scf: Inlet: \_\_\_\_\_  
 Outlet: \_\_\_\_\_

23. Emission rate of each pollutant (specify) into and out of collector:

| Pollutant | IN Pollutant |            | Emission Capture Efficiency % | OUT Pollutant |            | Control Efficiency % |
|-----------|--------------|------------|-------------------------------|---------------|------------|----------------------|
|           | tpy          | grains/acf |                               | tpy           | grains/acf |                      |
| A PM      | 0.019        |            |                               | 0.00019       |            | 99                   |
| B         |              |            |                               |               |            |                      |
| C         |              |            |                               |               |            |                      |
| D         |              |            |                               |               |            |                      |
| E         |              |            |                               |               |            |                      |

24. Dimensions of stack: Height \_\_\_\_\_ ft. Diameter \_\_\_\_\_ ft.

25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector.

**Particulate Distribution**

26. Complete the table:

| Particulate Size Range (microns) | Particle Size Distribution at Inlet to Collector | Fraction Efficiency of Collector |
|----------------------------------|--------------------------------------------------|----------------------------------|
|                                  | Weight % for Size Range                          | Weight % for Size Range          |
| 0 - 2                            |                                                  |                                  |
| 2 - 4                            |                                                  |                                  |
| 4 - 6                            |                                                  |                                  |
| 6 - 8                            |                                                  |                                  |
| 8 - 10                           |                                                  |                                  |
| 10 - 12                          |                                                  |                                  |
| 12 - 16                          |                                                  |                                  |
| 16 - 20                          |                                                  |                                  |
| 20 - 30                          |                                                  |                                  |
| 30 - 40                          |                                                  |                                  |
| 40 - 50                          |                                                  |                                  |
| 50 - 60                          |                                                  |                                  |
| 60 - 70                          |                                                  |                                  |
| 70 - 80                          |                                                  |                                  |
| 80 - 90                          |                                                  |                                  |
| 90 - 100                         |                                                  |                                  |
| >100                             |                                                  |                                  |

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

28. Describe the collection material disposal system:

29. Have you included **Other Collectors Control Device** in the Emissions Points Data Summary Sheet?

**30. Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

RECORDKEEPING:

REPORTING:

TESTING:

**MONITORING:** Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

**RECORDKEEPING:** Please describe the proposed recordkeeping that will accompany the monitoring.

**REPORTING:** Please describe any proposed emissions testing for this process equipment on air pollution control device.

**TESTING:** Please describe any proposed emissions testing for this process equipment on air pollution control device.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

**Attachment M**  
**Air Pollution Control Device Sheet**  
 (OTHER COLLECTORS)

Control Device ID No. (must match Emission Units Table):SaB-1C

**Equipment Information**

|                                                                                                                                                                                                                     |                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 1. Manufacturer: AAF International<br>Model No. 22 Gr Paint Arrestor                                                                                                                                                | 2. Control Device Name:<br>Type: filter |
| 3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency. |                                         |
| 4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device.                                                                                                   |                                         |
| 5. Provide a scale diagram of the control device showing internal construction.                                                                                                                                     |                                         |
| 6. Submit a schematic and diagram with dimensions and flow rates.                                                                                                                                                   |                                         |
| 7. Guaranteed minimum collection efficiency for each pollutant collected: 99%                                                                                                                                       |                                         |
| 8. Attached efficiency curve and/or other efficiency information.                                                                                                                                                   |                                         |
| 9. Design inlet volume: 14,600 SCFM                                                                                                                                                                                 | 10. Capacity:                           |
| 11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.<br><br>Not Applicable                                                                             |                                         |
| 12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA                                                                                 |                                         |
| 13. Description of method of handling the collected material(s) for reuse or disposal. Filters replaced per manufacturer's guidelines. Disposal will be in accordance with acceptable waste disposal procedures.    |                                         |

**Gas Stream Characteristics**

|                                       |                                         |                                        |
|---------------------------------------|-----------------------------------------|----------------------------------------|
| 14. Are halogenated organics present? | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Are particulates present?             | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Are metals present?                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 15. Inlet Emission stream parameters: | <b>Maximum</b>                          | <b>Typical</b>                         |
| Pressure (mmHg):                      |                                         |                                        |
| Heat Content (BTU/scf):               |                                         |                                        |
| Oxygen Content (%):                   |                                         |                                        |
| Moisture Content (%):                 |                                         |                                        |
| Relative Humidity (%):                |                                         |                                        |

|                                                                                                                                                                                                             |                                                                               |                                      |                      |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------|----------------------|-----------------------------|
| 16. Type of pollutant(s) controlled: <input type="checkbox"/> SO <sub>x</sub> <input type="checkbox"/> Odor<br><input checked="" type="checkbox"/> Particulate (type): paint <input type="checkbox"/> Other |                                                                               |                                      |                      |                             |
| 17. Inlet gas velocity: _____ ft/sec                                                                                                                                                                        | 18. Pollutant specific gravity: _____                                         |                                      |                      |                             |
| 19. Gas flow into the collector:<br>14,600 ACF @ _____ °F and<br>PSIA                                                                                                                                       | 20. Gas stream temperature:<br>Inlet: ambient °F<br>Outlet: ambient °F        |                                      |                      |                             |
| 21. Gas flow rate:<br>Design Maximum: _____ ACFM<br>Average Expected: _____ ACFM                                                                                                                            | 22. Particulate Grain Loading in grains/scf:<br>Inlet: _____<br>Outlet: _____ |                                      |                      |                             |
| 23. Emission rate of each pollutant (specify) into and out of collector:                                                                                                                                    |                                                                               |                                      |                      |                             |
| <b>Pollutant</b>                                                                                                                                                                                            | <b>IN Pollutant</b>                                                           | <b>Emission Capture Efficiency %</b> | <b>OUT Pollutant</b> | <b>Control Efficiency %</b> |
|                                                                                                                                                                                                             | lb/hr                                                                         | grains/acf                           | lb/hr                | grains/acf                  |
| A PM                                                                                                                                                                                                        | 1.0                                                                           |                                      | 0.01                 | 99                          |
| B                                                                                                                                                                                                           |                                                                               |                                      |                      |                             |
| C                                                                                                                                                                                                           |                                                                               |                                      |                      |                             |
| D                                                                                                                                                                                                           |                                                                               |                                      |                      |                             |
| E                                                                                                                                                                                                           |                                                                               |                                      |                      |                             |
| 24. Dimensions of stack: _____ Height _____ ft. _____ Diameter _____ ft.                                                                                                                                    |                                                                               |                                      |                      |                             |
| 25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector.                                                                           |                                                                               |                                      |                      |                             |

**Particulate Distribution**

| 26. Complete the table:<br>Particulate Size Range (microns) | Particle Size Distribution at Inlet to Collector | Fraction Efficiency of Collector |
|-------------------------------------------------------------|--------------------------------------------------|----------------------------------|
|                                                             | Weight % for Size Range                          | Weight % for Size Range          |
| 0 - 2                                                       |                                                  |                                  |
| 2 - 4                                                       |                                                  |                                  |
| 4 - 6                                                       |                                                  |                                  |
| 6 - 8                                                       |                                                  |                                  |
| 8 - 10                                                      |                                                  |                                  |
| 10 - 12                                                     |                                                  |                                  |
| 12 - 16                                                     |                                                  |                                  |
| 16 - 20                                                     |                                                  |                                  |
| 20 - 30                                                     |                                                  |                                  |
| 30 - 40                                                     |                                                  |                                  |
| 40 - 50                                                     |                                                  |                                  |
| 50 - 60                                                     |                                                  |                                  |
| 60 - 70                                                     |                                                  |                                  |
| 70 - 80                                                     |                                                  |                                  |
| 80 - 90                                                     |                                                  |                                  |
| 90 - 100                                                    |                                                  |                                  |
| >100                                                        |                                                  |                                  |

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):

28. Describe the collection material disposal system:

29. Have you included **Other Collectors Control Device** in the Emissions Points Data Summary Sheet? yes

**30. Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

RECORDKEEPING:

REPORTING:

TESTING:

MONITORING: Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

## ***Autek Spray Booths Inc.***

---

***6154 – 126<sup>th</sup> Ave North  
Largo, Fl 33773***

***P.O. Box 1983  
Palm Harbor, FL 34682***

***www.autek.us  
727-709-4373  
Fax 727-772-1185***

***FAX***

***01/21/2014***

***To: Erin / John  
From: Tom Kimball  
Re: Paint Arrestance Filter Test Report***

***Hello Erin***

***Here is the Filter Test Report for Air Filtration where we purchase our Filters or our spray booths.***

***Air Filtration Co would be happy to answer any questions. Just let them know you are working with Autek Spray Booths***

***Thanks***

***Tom Kimball  
Autek Spray Booths***



# AIR FILTRATION CO., INC.

## PAINT ARRESTANCE FILTER TEST REPORT Spray Removal Efficiency & Paint Holding Capacity

Tested for: Air Filtration Co., Inc.  
 Filter Mfr.: AAF International  
 Filter Name: 22 Gr Paint Arrestor (PA22 Series)  
 Report#/Test#: R 661 T 761  
 Report Date: March 16, 2005

### Test Information

#### FILTER DESCRIPTION:

White/Yellow highloft fiberglass

#### PAINT DESCRIPTION:

High Solids Baking Enamel (S.W. #1 Permaclad 2400, red)

#### PAINT SPRAY METHOD:

Conventional Air Gun at 40 PSI

#### SPRAY FEED RATE:

137 gr./min. 130 cc./min.

#### AIR VELOCITY:

150 FPM

### Test Results

#### INITIAL PRESSURE DROP of Clean Test Filter

0.02 in. water

#### FINAL PRESSURE DROP of Loaded Test Filter

0.11 in. water

#### WEIGHT GAIN on TEST FILTER & Test Frame Trough

4038 grams

#### PAINT HOLDING CAPACITY of TEST FILTER

1173 grams = 2.6 lbs.

#### PAINT RUN-OFF

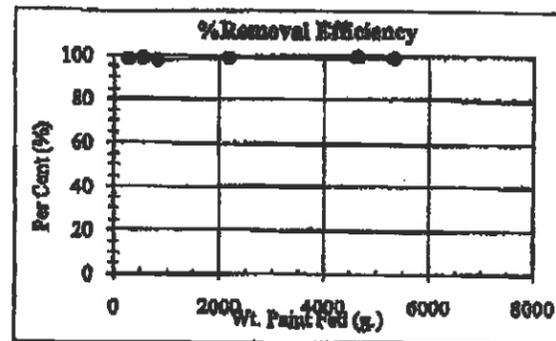
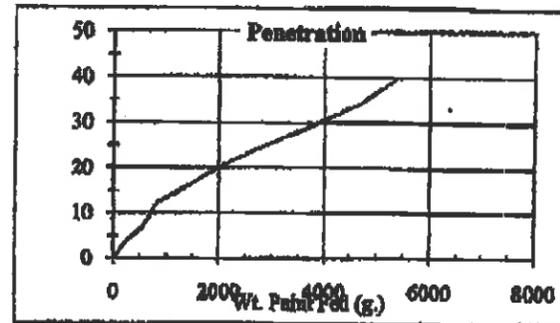
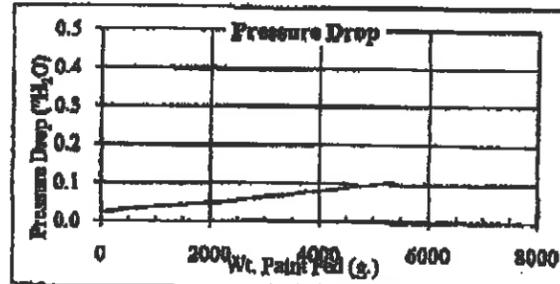
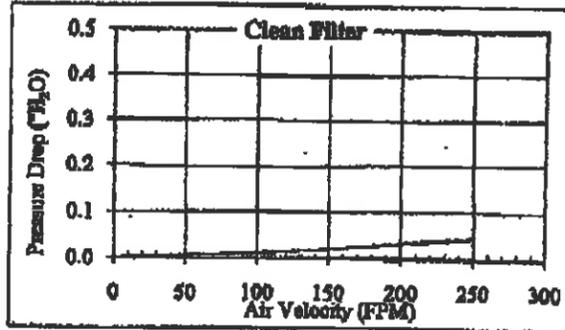
2865 grams

#### WEIGHT GAIN on FINAL FILTER

39.4 grams = PENETRATION

#### AVERAGE REMOVAL EFFICIENCY of TEST FILTER

98.03 %



Test Engineer: Todd Kruger

Supervising Engineer: K. C. Kwok, Ph.D.



**Gas Stream Characteristics**

|                                                                                                                                      |                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 12. Particle characteristics (for particulate matter):                                                                               |                                                    |
| Type of material: wood waste                                                                                                         | Particulate matter inlet rate to device: 1.0 lb/hr |
| Particle density:                                                                                                                    | grains/ACF                                         |
| Emission rate at collector outlet: 0.15 lb/hr                                                                                        |                                                    |
| grains/ACF                                                                                                                           |                                                    |
| 13. Total flow rate:                                                                                                                 | 14. Gas Stream Temperature:                        |
| Design maximum: 6,000 acfm                                                                                                           | Inlet: ambient °F                                  |
| Average expected: 6,000 acfm                                                                                                         | Outlet: ambient °F                                 |
| 15. Gas flow rate into collector: 6,000 acfm at ambient °F and PSIA                                                                  |                                                    |
| 16. Viscosity of gas stream at the above temperature and pressure: lb/sec-ft                                                         |                                                    |
| 17. Inlet gas velocity: ft/sec                                                                                                       | 18. Particulate Grain Loading in grains/scf:       |
|                                                                                                                                      | Inlet:                                             |
|                                                                                                                                      | Outlet:                                            |
| 19. Supply a curve showing particulate collection efficiency versus gas volume from 25 to 100 percent of design rating of collector. |                                                    |

**Particulate Distribution**

| 20. Complete the table:          | Particle Size Distribution at Inlet to Collector | Fraction Efficiency of Collector |
|----------------------------------|--------------------------------------------------|----------------------------------|
| Particulate Size Range (microns) | Weight % for Size Range                          | Weight % for Size Range          |
| 0 - 2                            |                                                  |                                  |
| 2 - 4                            |                                                  |                                  |
| 4 - 6                            |                                                  |                                  |
| 6 - 8                            |                                                  |                                  |
| 8 - 10                           |                                                  |                                  |
| 10 - 12                          |                                                  |                                  |
| 12 - 16                          |                                                  |                                  |
| 16 - 20                          |                                                  |                                  |
| 20 - 30                          |                                                  |                                  |
| 30 - 40                          |                                                  |                                  |
| 40 - 50                          |                                                  |                                  |
| 50 - 60                          |                                                  |                                  |
| 60 - 70                          |                                                  |                                  |
| 70 - 80                          |                                                  |                                  |
| 80 - 90                          |                                                  |                                  |
| 90 - 100                         |                                                  |                                  |
| >100                             |                                                  |                                  |

21. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):  
None

22. Describe the collection material disposal system:  
Material collected in two 55-gallon drums. Disposed of off-site when full.

23. Have you included **Mechanical Collector (Cyclone) Control Device** in the Emissions Points Data Summary Sheet? Yes

24. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**  
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

|                                                                                                                                                                                                                 |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| MONITORING:                                                                                                                                                                                                     | RECORDKEEPING: |
| REPORTING:                                                                                                                                                                                                      | TESTING:       |
| MONITORING: Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |                |
| RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.                                                                                                                   |                |
| REPORTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.                                                                                           |                |
| TESTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.                                                                                             |                |

25. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

26. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

27. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The 15hp System consists of the system components on this page and your choice of a filter option. Or, use the system with no filter and exhaust the cyclone outdoors.

## Base System

### 15hp Direct Drive Base System Parts and Price

#### Includes:

- (1) New York Blower

TEFC motor, 3 phase,

36" Dia. Cyclone Separator

Rectangular Inlet, Rectangular Outlet, Galv. Steel,  
Powder Coated

- (1) Support Structure

\*Standard stand will accommodate 2 Drum Kit or up to a 2 Yard Hopper.

- 2x 55 Gal. Steel Drum Kit

Note: Hoppers and Air Locks available.

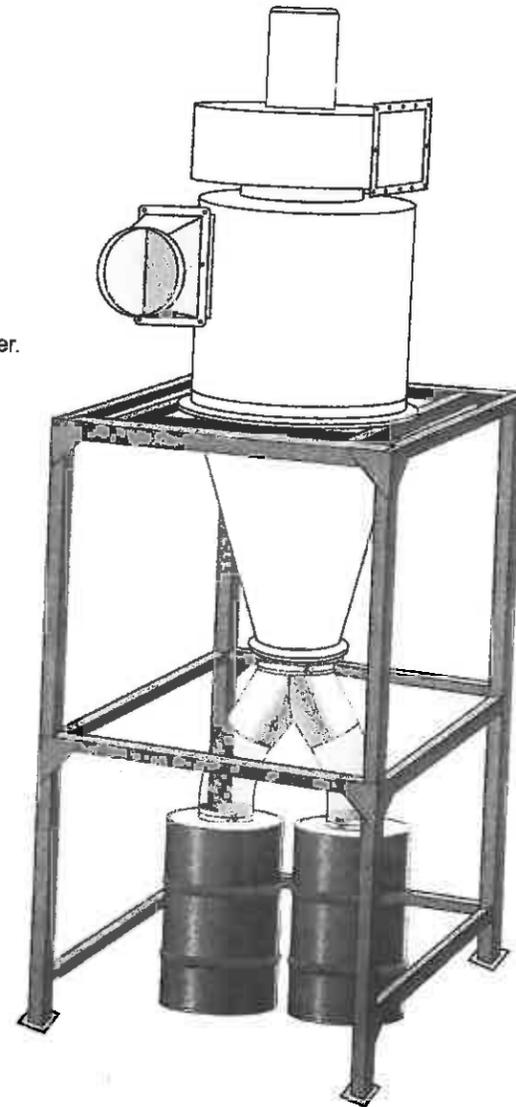
- Magnetic Starter

Square - D, Full Voltage, Across the line starter,  
NEMA -1, Start/Stop in cover, Class 10 Overload.  
230V Line/Coil.

\*Others Available.

5. 14" Dia. Inlet Square to Round Spiral Pipe

Our entire system is ETL  
Safety Certified.



### Base System - No Filter\*

Use the base system with no filter when you can vent fine dust outside and do not require return air or add one of our filter options.

\*Standard installation - Yours may require more pieces.

# General Specifications

## 15hp System Dimensions

Height w/ 2x 55 Gal. Drum: 172 3/4"  
Footprint:  
62" x 110" Plenum Kit 1  
62" x 138 1/2" Plenum Kit 2  
Cyclone Inlet Diameter: 14"

## Fan Blower

Made in USA NYB, 15 horsepower  
Three Phase: 208 - 230/460V  
37.5 - 34/17A  
Backward Incline, Size 18, PLR Wheel

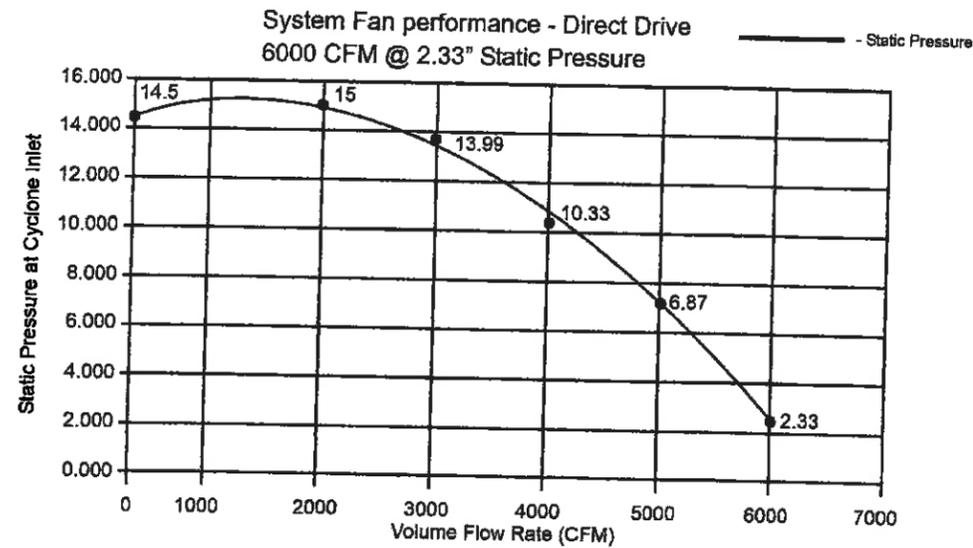
## Cartridge Filters

4 Cartridge Filters Standard 155 Sq. Ft. each  
Spun-Bonded Polyester Filter Media  
BIA ZH1/487 Rated C  
Captures 99.9% of test material between 0.2 - 2.0  
microns @ 11 FPM face velocity.

## Dust Containers

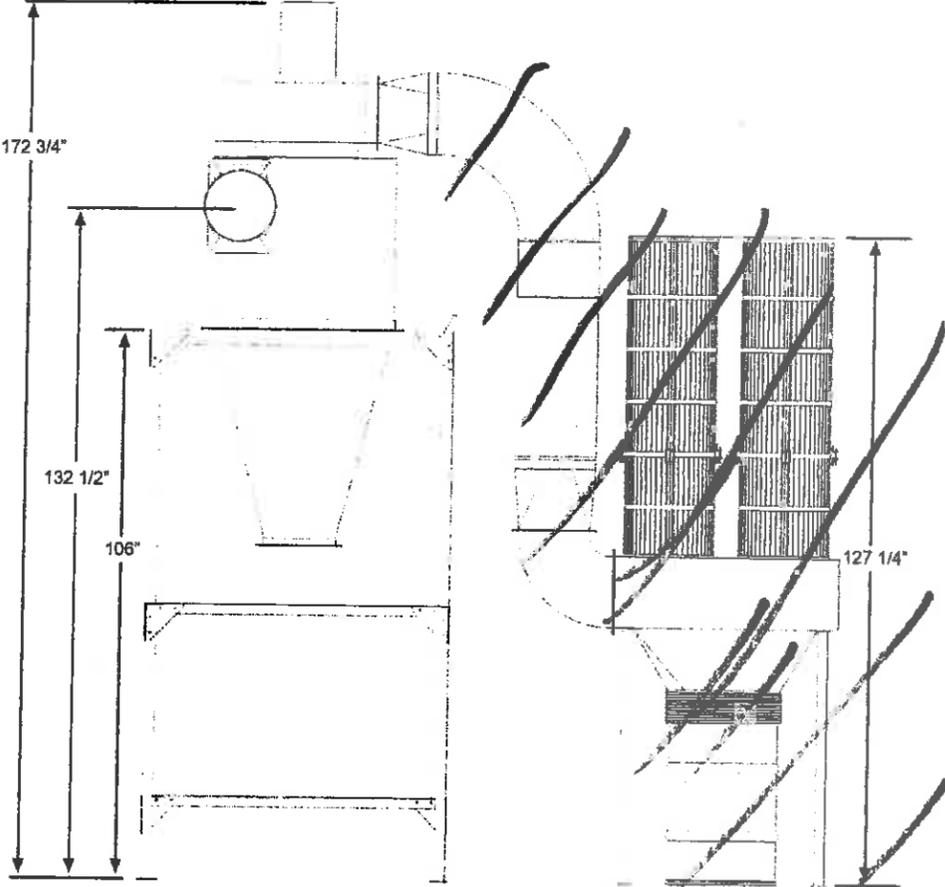
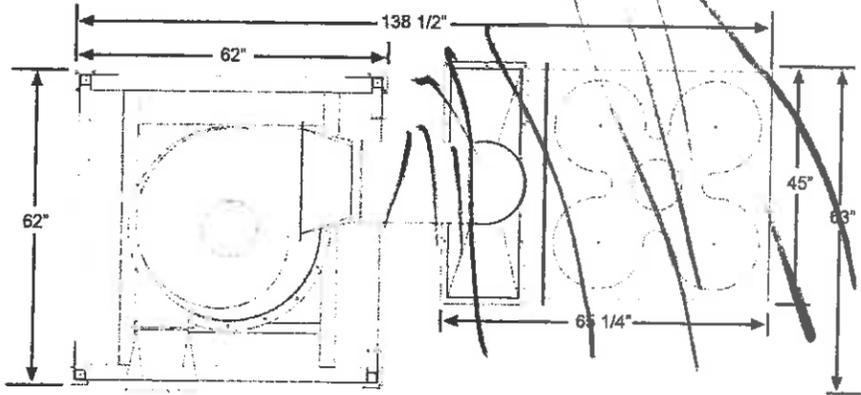
(2) 55 Gal. Drums  
Multiple Dust Bin Connections available  
Hoppers Available  
Airlocks Available

## Fan Curve



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# Dimensions for System with Plenum Kit 2



Systems and dimensions subject to change without notice.

# BOMBARDIER - BRIDGEPORT, WV

## Emissions Summary

| Total Project PTE              |        |         |
|--------------------------------|--------|---------|
| Pollutant                      | lb/hr  | tpy     |
| CO                             | 0.13   | 0.55    |
| NOx                            | 0.15   | 0.66    |
| PM                             | 1.03   | 0.05    |
| SO2                            | 0.001  | 0.004   |
| VOC                            | 23.31  | 2.03    |
| Total HAPs                     | 7.08   | 0.71    |
| Ethyl Benzene                  | 0.16   | 0.0039  |
| Ethylene Oxide                 | 0.0052 | 0.00012 |
| Formaldehyde                   | 0.023  | 0.0028  |
| Hexamethylene-1,6-Diisocyanate | 0.025  | 0.0030  |
| n-Hexane                       | 0.72   | 0.017   |
| Methyl Isobutyl Ketone         | 0.99   | 0.119   |
| Styrene                        | 3.13   | 0.38    |
| Toluene                        | 0.25   | 0.0061  |
| 2,4-Toluene Diisocyanate       | 0.025  | 0.0030  |
| Xylenes                        | 1.75   | 0.18    |





# BOMBARDIER - BRIDGEPORT, WV

## Coatings Solids

|                 |                        |                      |
|-----------------|------------------------|----------------------|
| Coatings        | 2.5 gal/month          | 30 gal/year          |
| Glue            | 2 gal/month            | 24 gal/year          |
| Acetone Solvent | 1 gal/month            | 12 gal/year          |
| Acrysol Solvent | 1 gal/month            | 12 gal/year          |
| Sealer          | 0.125 gal/month        | 1.5 gal/year         |
| Polishes        | 0.25 gal/month         | 3 gal/year           |
| Safety Kleen    | 1 gal/month            | 12 gal/year          |
| <b>Total</b>    | <b>7.875 gal/month</b> | <b>94.5 gal/year</b> |

| Coatings         | Solids (%) | Density lb/gal | Tons per Year PM |
|------------------|------------|----------------|------------------|
| ZMP693A          | 0          | 8.08           | 0.0              |
| ZMP666B          | 0          | 9.88           | 0.0              |
| ZMP7773          | 0          | 11.19          | 0.0              |
| DUR3498A         | 0          | 9.15           | 0.0              |
| DUR3499B         | 0          | 10             | 0.0              |
| DS61             | 0          | 9              | 0.0              |
| ZMP3005          | 0          | 9.34           | 0.0              |
| CAT2015A         | 0          | 8.95           | 0.0              |
| DS27             | 0          | 8.1            | 0.0              |
| DS37             | 0          | 7.3            | 0.0              |
| DS22             | 0          | 7.59           | 0.0              |
| <b>Glue</b>      |            |                |                  |
| Scotch-Weld 1357 | 17         | 6.8            | 0.014            |
| <b>Solvents</b>  |            |                |                  |
| Acetone          | 0          | 6.59           | 0.0              |
| Acrysol P20005   | 0          | 6.47           | 0.0              |
| Safety Kleen     | 0          | 6.6            | 0.0              |
| <b>Sealer</b>    |            |                |                  |
| Permabond        | 17         | 6.8            | 0.00087          |
| <b>Polishes</b>  |            |                |                  |
| 3M 06060         | 30         | 9.18           | 0.0041           |
| 3M 05927         | 10         | 8.34           | 0.0013           |

**Totals** **0.020 tpy PM uncontrolled**  
**0.00020 tpy PM controlled**

## BOMBARDIER

Make-up Air Unit for Spray Booth

| Air Emissions from Natural Gas Fired Make-up Air Unit<br>1,500,000 Btu/hr Design Heat Input |                                       |                             |          |           |
|---------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------|----------|-----------|
| Pollutant                                                                                   | AP-42<br>Emission<br>Factor           | Maximum Estimated Emissions |          |           |
|                                                                                             | (lb/10 <sup>6</sup> ft <sup>3</sup> ) | (lb/hr)                     | (lb/day) | (tons/yr) |
| CO                                                                                          | 84                                    | 0.13                        | 3.02     | 0.55      |
| Nox                                                                                         | 100                                   | 0.15                        | 3.60     | 0.66      |
| SO <sub>2</sub>                                                                             | 0.6                                   | 0.001                       | 0.02     | 0.004     |
| PM                                                                                          | 7.6                                   | 0.01                        | 0.27     | 0.05      |
| VOC                                                                                         | 5.5                                   | 0.01                        | 0.20     | 0.04      |

**Notes:**

Emission factors from AP-42 Chapter 1, Section 4 (7/98)

1500 cuft/hr of natural gas burned based on 1,000 Btu/cuft  
13140000 cuft/year  
13.14 mmcf/year

Example:  $84 \text{ lb CO}/1000000 \text{ ft}^3 \times 1500 \text{ ft}^3/\text{hr} = 0.13 \text{ lb/hr CO}$   
 $0.13 \text{ lb/hr CO} \times 24 \text{ hr/day} = 3.02 \text{ lb/day}$   
 $0.13 \text{ lb/hr} \times 8760 \text{ hr/year} \times \text{ton}/2000 \text{ lb} = 0.55 \text{ ton/year CO}$

The maximum estimated emissions are well below the permit levels defined in 45CSR13 paragraph 2.17.a of six (6) pounds per hour and ten (10) tons per year or more than 144 pound per calendar day.

**AIR QUALITY PERMIT NOTICE**  
**Notice of Application**

Notice is given that Bombardier Services Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for an aerospace maintenance and repair facility located at 2400 Aviation Way, Bridgeport, in Harrison County, West Virginia. The latitude and longitude coordinates are: 39.299664 degrees north latitude and 80.230117 degrees west longitude.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be: 0.55 tons per year of carbon monoxide, 0.66 tons per year of oxides of nitrogen, 0.05 tons per year of particulate matter, 0.004 tons per year of sulfur dioxide, 2.03 tons per year of volatile organic compounds, 0.71 tons per year of total hazardous air pollutants (HAPs).

The modified operation is planned to begin on or about the first day of February, 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 26<sup>th</sup> day of January, 2015.

By: Bombardier Services Corporation  
Chad Hill  
Director of Operations  
2400 Aviation Way  
Bridgeport, WV 26330