

TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT NUMBER 47811

I. INTRODUCTION

This permit is for the continued operation of a facility manufacturing aluminum doors and windows, MI Windows & Doors, Inc./MI Metals, Inc. in Prescott Valley, AZ. This is a renewal for Air Quality Permit Number 1000799.

Company Information

1. Mailing Address: P.O. Box 4490
Clearwater, FL 33758
2. Facility Address: 7555 E. State Route 69
Prescott Valley, AZ 86314

II. FACILITY DESCRIPTION

A. Equipment

MI Windows & Doors, Inc./MI Metals, Inc. operates the stationary aluminum doors and windows fabrication facility with the following equipment:

1. 5.4 MMBTU/hr Granco Clark Furnace
2. 7.0 MMBTU/hr Granco Clark Oven
3. 1.6 MMBTU/hr Eclipse Heater
4. 3.0 MMBTU/hr Belco Oven
5. 5.0 MMBTU/hr Belco Oven
6. 5.5 MMBTU/hr Applied Air System Heater
7. 5.3 MMBTU/hr Space Heaters
8. 0.3 MMBTU/hr Pollution Control Oven
9. 0.15 MMBTU/hr Die Tank Heater
10. 11.1 gal/hr Paint Spray Booths
11. 2 gal/hr Glass Assembly
12. 1 gal/hr Frame Assembly
13. 11.0 gal/hr Seam Sealer Back Bedding

B. Process Description

Aluminum logs are heated and then extruded into suitable profiles required in the fabrication of doors and windows. The extruded aluminum is then aged in ovens to improve the desired characteristics. Roughly 75% of the extruded aluminum is surface coated using high quality paints. Prior to painting, the metal is given a chemical coating to improve the adhesion and durability of the painted surface. After coating, the paint is oven cured. Solvents are used to flush the paint line for color changes and to maintain good operating conditions. Flushing solvents are captured in containers for reuse or for transportation offsite for disposal.

Aluminum and vinyl extrusions are cut and assembled into doors and windows. Single glazed or double-glazed glass is bedded into the frames using an adhesive compound. Isopropyl alcohol is used to wipe down double glazed glass to ensure that no dirt is left inside the glass before sealing.

III. COMPLIANCE HISTORY

There have been five inspections and one report review since January 28, 1997. There have been no air quality cases and/or violations that were developed during the inspections.

IV. LEARNING SITES EVALUATION

In accordance with ADEQ's Environmental Permits and Approvals Near Learning Sites Policy, the Department conducted an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

The Department identified fifteen learning sites within a two mile radius of MI Windows and Doors, Inc./MI Metals, Inc. The impacted schools are Prescott Valley School, Glassford Hill Middle School, Acorn Montessori Charter School, Arizona Montessori charter School – Presco, Excel Education Centers Prescott Valley, Mingus Mountain Academy, Mountain View Elementary School, Park View Middle School, Liberty Traditional School, Yavapai County Accommodation High School, God's Word Preschool, Yavapai Community College – Business/Career Center, Yavapai Accommodation School and Kiddie Department Preschool/Daycare.

The Department has reviewed the emission sources at the facility and has determined that the operation of the facility will not adversely affect the learning sites.

V. EMISSIONS

The emission calculations for the permit review process relied upon emission factors drawn from EPA's Compilation of Air Pollution Emission Factors Vth ed. (A.P. 42). Table 1 below depicts the facility wide emissions with accepted limit on annual usage of spray paint and other chemicals.

Table 1: Facility Wide Emissions

Pollutant	Emissions (tpy)
PM ₁₀	1.09
SO ₂	0.09
NOx	14.28
VOC	90.0
CO	11.99
HAPs	22.5
Single HAP	9.00

The Facility has accepted a 90 tpy VOC, a 22.5 tpy total HAPs and a 9.00 single HAP emissions limitations.

VI. APPLICABLE REGULATIONS

The Permittee has identified the applicable regulations that apply to each unit in its permit application. The following table summarizes the findings of the Department with respect to the regulations that are applicable to each emissions unit. Previous permit conditions are discussed under Section VI of this technical review document.

Applicable Regulations

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
Furnace	1980	N/A	<u>A.A.C.</u> R18-2-702.B R18-2-730.A.1 R18-2-730.B R18-2-730.D R18-2-730.F R18-2-730.G	This standard is applicable to unclassified sources. This natural gas furnace qualifies under this source category.
Indirect-Contact Ovens	1980 2007	N/A	<u>A.A.C.</u> R18-2-724.C R18-2-724.E R18-2-724.J	This standard is applicable for fossil-fuel fired industrial and commercial equipment which are less than 250 MMBtu/hr and greater than 0.5 MMBtu/hr and are used primarily to produce steam, hot water or hot air and do not come into direct contact with process materials. These natural gas ovens qualify under this source category.
Direct-Contact Ovens	1980	N/A	<u>A.A.C.</u> R18-2-702.B R18-2-730.A.1 R18-2-730.B R18-2-730.D R18-2-730.F R18-2-730.G	This standard is applicable to unclassified sources. These natural gas ovens qualify under this source category.
Space Heaters	1980	N/A	<u>A.A.C.</u> R18-2-724.C R18-2-724.E R18-2-724.J	This standard is applicable to unclassified sources. These natural gas space heaters qualify under this source category.
Fugitive Dust Sources	N/A	Water and other reasonable precautions	<u>A.A.C.</u> R18-2-702.B Article 6	This standard is applicable to all fugitive dust sources.

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
<p>Glass Assembly Frame Assembly Seam Sealer Back Bedding</p>	<p>1980</p>	<p>N/A</p>	<p><u>A.A.C.</u> R18-2-702.B R18-2-730.A.1 R18-2-730.B R18-2-730.D R18-2-730.F R18-2-730.G R18-2-730.L</p>	<p>This standard is applicable for unclassified sources. The miscellaneous natural gas equipment qualifies under this source category.</p>
<p>Mobile Sources</p>	<p>N/A</p>	<p>Water Sprays/Water Truck for dust control</p>	<p><u>A.A.C.</u> Article 8</p>	<p>This Article is applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization.</p>
<p>Spray Painting Operations</p>	<p>N/A</p>	<p>N/A</p>	<p><u>A.A.C.</u> R18-2-702.B R18-2-727</p>	<p>This standard is applicable to any spray-painting operation. The NESHAP for paint stripping and miscellaneous surface coating operations at area sources (40 CFR 63 Subpart HHHHHH) does not apply because the paint application of coatings does not contain chromium, lead, manganese, nickel or cadmium. The paint stripping operations at the facility do not use methylene chloride and no autobody or mobile equipment refinishing is done at the facility.</p>

Unit ID	Year of Manufacture	Control Equipment	Applicable Regulations	Verification
Demolition/ Renovation Operations	N/A	N/A	<u>A.A.C.</u> R18-2-1101.A.8	This standard is applicable to any asbestos related demolition or renovation operations.
Abrasive Blasting	N/A	N/A	<u>A.A.C.</u> R18-2-726 R18-2-702.B	This standard is applicable to any activity relative to abrasive blasting operations.

VII. PREVIOUS PERMIT CONDITIONS

A. Previous Permits

The following table lists the previous permits that have been issued to MI Windows and Doors, Inc./MI Metals, Inc.

Previous Permits

Date Permit Issued	Permit #	Application Basis
01/20/94	250040PO-99	Operating Permit
02/05/04	1000799	Operating Permit
03/31/04	32347	Administrative Amendment
09/29/04	33643	Administrative Amendment

B. Previous Permit Conditions

The following are discussions on the previous permits that have been issued to the source.

CLASS II, NON-TITLE V OPERATING PERMIT NO. 1000799

This operating permit was issued to MI Windows and Doors, Inc./MI Metals, Inc. on February 5, 2004, to operate an aluminum/vinyl doors and windows manufacturing plant.

OP #1001799, References	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Att. A.	X				General provisions - revised to represent most recent language
Att.B.I		X			Facility Wide Requirements-establishes emission caps and operating limitations.
Att B.II	X				Furnaces, Ovens, Heaters & Miscellaneous Fuel Burning Equipment—revised to include both direct-fired and indirect fired fuel burning equipment. This section covers both standards of performance for fossil-fuel fired industrial & commercial equipment and standards of performance for unclassified sources.
Att B.III	X				Spray Painting Operations—revised to represent most recent language and is now covered in the Other Periodic Activity Requirements Section.
Att B.IV	X				Miscellaneous Activities—revised to represent most recent language.
Att C	X				Equipment List-the equipment list has been updated with the most current information

VIII. MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

A. Facility Wide Requirements

1. The Permittee is required to keep daily logs of the total usage of all VOC and Federal HAPs containing compounds, (in gallons) used at the facility.
2. At the end of every calendar month, the Permittee must calculate and record the monthly totals of VOC and Federal HAP emissions. The VOC and Federal HAP emissions must be estimated by utilizing the usage level of the compounds and emission factors derived from material safety data sheets.
3. At the end of every calendar month, the Permittee must update and record rolling twelve-month totals of VOC and Federal HAP emissions to demonstrate compliance with the emission limits specified in the permit.
4. At the time that the semi-annual compliance certifications are due, the Permittee is required to submit reports of the rolling twelve-month totals of VOC and Federal HAP emissions for the months in that six-month period.

B. Furnaces, Ovens, Heaters & Miscellaneous Fuel Burning Equipment

1. Indirect-Fired Fuel Burning Equipment

- a. A certified EPA Reference Method 9 observer must conduct a quarterly survey of visible emissions emanating from the stacks of the fuel burning equipment when in operation. If the opacity of the emissions observed appears to exceed the standard, then the observer is required to conduct a certified EPA Reference Method 9 observation. The Permittee must keep records of the name of the observer, date, time, and location of the observation, and the result of the Method 9 survey/observation.
- b. If the observation results in a Method 9 opacity reading in excess of 15 percent, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 15 percent. The Permittee is required to keep a record of the corrective action performed.

2. Direct-Fired Fuel Burning Equipment

- a. A certified EPA Reference Method 9 observer is required to conduct a quarterly survey of visible emissions emanating from the stacks of the fuel burning equipment when in operation. If the opacity of the emissions observed appears to exceed the standard, then the observer must conduct a certified EPA Reference Method 9 observation. The Permittee must keep records of the name of the observer, date, time, and location of the observation, and the result of the Method 9 survey/observation.
- b. If the observation results in a Method 9 opacity reading in excess of 20 percent, the Permittee must report this to ADEQ as excess emission and initiate appropriate corrective action to reduce the opacity below 20 percent. The Permittee must keep a record of the corrective action performed.

C. Miscellaneous Activities

1. Opacity and Particulate Matter

- a. A certified EPA Reference Method 9 observer is required to conduct a quarterly survey of visible emissions emanating from the stacks covered under this section. If the opacity of the emissions observed appears to exceed the standard, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee must keep records of the name of the observer, date, time, and location of the observation, and the results of the Method 9 survey/observation.
- b. If the Method 9 observation exceeds the 20% opacity limit, the Permittee must initiate the appropriate corrective action to reduce the opacity below 20%. The Permittee must keep a log of actions taken to reduce the opacity.

2. Volatile Organic Compounds

The Permittee must keep copies of the most recent version of the Material Safety Data Sheet (MSDS) for every chemical and material used or stored at the facility.

D. Fugitive Dust Requirements

A certified Method 9 observer is required to conduct a quarterly visual survey of visible emissions from the fugitive dust sources. The Permittee must keep a record of the name of the observer, the date and location on which the observation was made, and the results of the observation.

IX. MODELING

The Department conducted a SCREEN3 dispersion modeling analysis for MI Windows & Doors, Inc. on October 31, 2008, to determine the impact that the facility has on the learning sites within a two mile radius. The total concentrations included background concentrations and were calculated at one hour, three hour, eight hour, twenty-four hour and annual intervals, as applicable. The table below lists the standard and the results of the modeling analysis.

Table 10: Total Modeled Concentrations of Criteria Pollutants Compared to National Ambient Air Quality Standards (NAAQS)

Pollutant	1-hr		3-hr		8-hr		24-hr		Annual	
	Total Conc. (µg/m3)	Standard	Total Conc. (µg/m3)	Standard	Total Conc. (µg/m3)	Standard	Total Conc. (µg/m3)	Standard	Total Conc. (µg/m3)	Standard
CO	666.23	40000			640.96	10000				
SOX			170.42	1300			54.19	365	7.04	80
NOX									11.81	100
PM10							75.40	150	19.08	50

Table 11: Total Modeled Concentrations of Hazardous Air Pollutants Compared to the Ambient Air Concentrations in Article 17 of the Arizona Administrative Code

Pollutant	Acute (1-hr) Exposure		Chronic (Annual) Exposure	
	Total Conc. (µg/m3)	Standard	Total Conc. (µg/m3)	Standard
Naphthalene	1.60E-03	7.50E+01	3.51E-07	5.58E-05
Glycol ether	1.02E-02	2.50E+02	2.23E-06	3.14E-03
Cumene	6.97E-05	9.35E+02	1.53E-08	4.17E-01
Toluene	9.76E-03	1.92E+03	2.14E-06	5.21E+00
MIBK	4.67E-03	5.00E+02	1.02E-06	3.13E+00

As the above tables indicate, all the pollutants modeled were found to be in concentrations below both the National Ambient Air Quality Standards and the Ambient Air Concentrations in Article 17 of the Arizona Administrative Code. The Department determined that the operation of the facility will not adversely affect the learning sites based on this dispersion modeling analysis.

X. LIST OF ABBREVIATIONS

A.A.C.Arizona Administrative Code
 ADEQ..... Arizona Department of Environmental Quality
 COCarbon Monoxide

ft	Feet
HAP	Hazardous Air Pollutant
hr.....	Hour
lb.....	Pound
m.....	Meter
MIBK	Methyl Isobutyl Ketone
MMBtu.....	Million British Thermal Units
NAAQS	National Ambient Air Quality Standard
NO _x	Nitrogen Oxide
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PTE.....	Potential-to-Emit
s	Seconds
SO ₂	Sulfur Dioxide
TPY	Tons per Year
VOC	Volatile Organic Compound
yr.....	Year

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