

**CONSTRUCTION PERMIT  
OFFICE OF AIR MANAGEMENT**

**Adorn, Inc.  
1808 West Hively Ave.  
Elkhart, IN 45617**

is hereby authorized to construct

a laminated and Corian counter top manufacturing facility, consisting of the following equipment:  
woodworking processes with two (2) baghouses and one (1) dust storage silo, roll surface coating process, and two (2) 0.56 MM Btu per hour natural gas fired radiant heaters (H1 and H2).

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-039-8835-00324	
Issued by:  Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

## Construction Conditions

### General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

### Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

### First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:
  - (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
  - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
  - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
  - (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).
  - (e) The Permittee has submitted their Part 70 permit on December 13, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the

submitted Part 70 application.

7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

## **Operation Conditions**

### General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).
2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

### Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:
  - (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.
  - (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.
  - (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

### Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):
  - (a) In the event that ownership of this laminated and Corian counter top manufacturing facility is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
  - (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
  - (c) The OAM shall reserve the right to issue a new permit.

### Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:
- (a) Violation of any conditions of this permit.
  - (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
  - (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
  - (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
  - (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by the IDEM, (local agency if applicable) or other public official having jurisdiction.

Malfunction Condition

7. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):
- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.
  - (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
  - (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).
  - (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

PSD Minor Source Limit

8. That the total amount of volatile organic compounds (VOC) delivered to the applicator including

clean-up solvents shall not exceed 41,500 pounds per month (249 tons per year). Satisfaction of this condition and all other Operation Conditions shall render Prevention of Significant Deterioration Rule 326 IAC 2-2 not applicable in this case.

Annual Emission Reporting

9. That pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

Indiana Department of Environmental Management  
Technical Support and Modeling Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30.

Opacity Limitations

10. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:
- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
  - (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

Particulate Matter Limitation

11. That pursuant to 326 IAC 6-2-4, the particulate matter (PM) emissions from the 0.56 million (MM) BTU/hour radiant heaters shall be limited to 0.6 pounds/MM BTU heat input.
12. That pursuant to 326 IAC 6-3 (Process Operations), the two (2) baghouses shall be in operation at all times when the woodworking operation is in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 11.5 pounds per hour.

Baghouse Operating Condition

13. That the baghouse shall be operated at all times when the (unit/operation, i.e. woodworking operation) is in operation.
- (a) The Permittee shall take readings of the total static pressure drop across the baghouses, at least once per week. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 1 and 3 inches of water. The Preventive Maintenance Plan for these baghouses shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.
  - (b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

- (c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within  $\pm 2\%$  of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.
- (d) An inspection shall be performed each calendar quarter of each baghouse(s). Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.
- (e) In the event that a bag's failure has been observed:
  - (i) The affected compartments will be shut down immediately until the failed units have been replaced.
  - (ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Visible Emission Notations

14. That visible emission notations of all exhaust to the atmosphere from the two (2) baghouses shall be performed once per working shift. A trained employee will record whether emissions are normal or abnormal.
- (a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80% of the time, the process is in operation, not counting start up or shut down time.
  - (b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.
  - (c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.
  - (d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Fugitive Dust Emissions

15. That pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)].

Volatile Organic Compound (VOC) Limitations

16. That pursuant to 326 IAC 8-2-12 (Wood Furniture and Cabinet coating), the surface coatings applied to wood furniture and/or wood components shall utilize one or more of the following application methods:

Airless Spray Application

Air-Assisted Airless Spray Application

Electrostatic Spray Application	Electrostatic Bell or Disc Application
Heated Airless Spray Application	Roller Coating
Brush or Wipe Application	Dip-and-Drain Application
High Volume Low Pressure HVLP	Aerosol Spray Cans

High volume low pressure spray is an acceptable alternative application of air-assisted airless spray. High volume low pressure (HVLP) spray means technology used to apply coating to a substrate by means of coating application equipment which operates between one-tenth (0.1) and ten (10) pounds per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns of the spray system.

# Indiana Department of Environmental Management Office of Air Management

## Technical Support Document (TSD) for New Construction and Operation

### Source Background and Description

Source Name: Adorn, Inc.  
Source Location: 1808 West Hively Ave., Elkhart, IN 45617  
County: Elkhart  
Construction Permit No.: CP-039-8835-00324  
SIC Code: 2490  
Permit Reviewer: George Kunstek

The Office of Air Management (OAM) has reviewed an application from Adorn, Inc. relating to the construction and operation of a laminated and Corian counter top manufacturing facility, consisting of the following equipment:

- (a) woodworking processes with two (2) baghouses and one (1) dust storage silo,
- (b) roll surface coating facility , and
- (c) two (2) 0.56 MM Btu per hour natural gas fired radiant heaters.

Laminating sheets raw material inputs are 9300.00 pounds per hour of wood, 1200 pounds per hour of HPC, 166.18 pounds of 2403 which is manufactured into 9364.81 pounds of semi-finished laminated sheets. These sheets are then further processed by applying 4.15 pounds per hour of 2403, 0.63 pounds per hour of 1786, 2.95 pounds per hour of 140, 2.19 pounds per hour of stain, 2.16 pounds per hour of topcoat, and 1.25 pounds per hour of toluene. This forms 9368.80 pounds of finished laminated counter tops.

Corian counter tops raw material inputs are 200.00 pounds per hour of Corian, 0.47 pounds per hour of caulk, 0.70 pounds per hour of adhesive, and 0.16 pounds per hour of alcohol. All this is manufactured into 200.92 pounds per hour of finished Corian counter tops.

Air pollution controls consist of two (2) baghouses and one (1) dust storage silo for the woodworking operation. There are no controls for the roll surface coating operation, because the transfer efficiency is 100 percent and there is no air-borne particulate matter emissions.

The proposed date of construction is August 1, 1997 and the application was signed on July 22, 1997.

### Source Definition

This company was previously known as Bristol Laminating, Inc. prior to the company name change.

### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
H1	Boiler H1	33	0.5	500	300
H2	Boiler H2	33	0.5	500	300
B3	Woodworking	35	N/A	52,300	ambient
B4	Woodworking	35	N/A	11,300	ambient
S1	Silo	65	N/A	negligible	ambient

### Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on August 1, 1997.

### Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets) for five (5) pages of detailed calculations.

### Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	50.3	50.3
Particulate Matter (PM10)	50.3	50.3
Sulfur Dioxide (SO <sub>2</sub> )	0.0	0.0
Volatile Organic Compounds (VOC)	24.5	24.5
Carbon Monoxide (CO)	0.2	0.2
Nitrogen Oxides (NOx)	0.4	0.4
Single Hazardous Air Pollutant (HAP)	1.85	1.85
Combination of HAPs	2.72	2.72

- (a) Allowable emissions are determined from the applicability of rule 326 IAC 6-3. See attached spreadsheets for detailed calculations.
- (b) The allowable emissions based on the rules cited are less than the potential emissions, therefore, the allowable emissions are used for the permitting determination.

- (c) Allowable emissions (as defined in the Indiana Rule) of particulate matter and volatile organic compounds pollutants are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

**County Attainment Status**

Elkhart County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

**Source Status**

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	78.3
PM10	78.3
SO <sub>2</sub>	0.009
VOC	249.28
CO	0.302
NO <sub>x</sub>	1.468

This existing source is **not** a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories.

**Proposed Modification**

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO <sub>2</sub> (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO <sub>x</sub> (ton/yr)
Proposed Modification	50.3	50.3	0.0	24.5	0.2	0.4
PSD or Offset Threshold Level	250	250	250	250	250	250

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

**Part 70 Permit Determination**

**326 IAC 2-7 (Part 70 Permit Program)**

This existing source has submitted their Part 70 (T-039-7650-00324) application on December 13, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

This status is based on all the air approvals issued to the source. This status has been verified by the OAM inspector assigned to the source.

**Federal Rule Applicability**

**40 CFR Part 63, Subpart JJ, National Emission Standards for Wood Furniture Manufacturing Operations**

This woodworking operation is covered by 40 CFR Part 63, Subpart JJ (National Emission Standards for Wood Furniture Manufacturing Operations), because this source is a major source as defined in 40 CFR Part 63.2.

**State Rule Applicability**

**326 IAC 2-6 (Emission Reporting)**

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 10 tons/yr of VOC and is in Elkhart County. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by April 15 or July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

**326 IAC 6-2 (Particulate Emissions Limitations for Sources of Indirect Heating)**

The two (2) 0.56 MMBTU/hr natural gas fired radiant heaters are subject 326 IAC 6-2 (Particulate Emissions Limitations for Sources of Indirect Heating). Pursuant to 326 IAC 6-2-4, the particulate matter (PM) emissions shall be limited to 0.6 pounds per million BTU heat input.

Allowable PM emissions = (2 heaters)(0.6 lb/MMBTU)\*(0.56 MMBTU/hr)\*(8760 hr/yr)  
\*(1 ton/2000 lbs) = 2.94 tons/year

Based on this calculation, the controlled potential emissions are less than the allowable emissions, therefore, the heaters comply with the rule.

**326 IAC 6-3-2 (Process Operations: Particulate Emissions Limitations)**

That pursuant to 326 IAC 6-3 (Process Operations), the baghouses shall be in operation at all times when the woodworking processes are in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 11.5 pounds per hour.

The processes used are in compliance with this requirement. See Appendix A (page 4 of 5) for calculations.

**326 IAC 8-2-12 (Surface Coating Emission Limitations: Wood Furniture and Cabinet Coating)**

Pursuant to 326 IAC 8-2-12 (Surface Coating Emissions Limitations: Wood Furniture and

Cabinet Coating), the owner or operator shall apply all coating material, with the exception of no more than ten (10) gallons of coating per day used for touch-up and repair operations, using one (1) or more of the following application systems: airless spray application system, air-assisted airless spray application system, electrostatic spray application system, electrostatic bell or disc application system, heated airless spray application system, roller coat, brush or wipe application system or dip-and drain application system.

Roller coating application complies with this rule.

### **Air Toxic Emissions**

Indiana presently requests applicants to provide information on emissions of the 189 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

- (a) This new facility will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.
- (b) See attached spreadsheets (Appendix 5 of 5) for detailed air toxic calculations.

### **Conclusion**

The construction of this counter top manufacturing facility consisting of woodworking processes with two (2) baghouses and one (1) dust storage silo, roller surface coating process, and two (2) 0.56 MM Btu per hour natural gas fired radiant heaters will be subject to the conditions of the attached proposed **Construction Permit No. CP-039-8835-00324**.

## HAP Emission Calculations

**Company Name:** Adorn, Inc.  
**Plant Location:** 1808 West Hively Ave., Elkhart, IN 45617  
**County:** Elkhart  
**Permit Reviewer:** George Kunstek  
**Date:** 09-08-97

	(pounds/hour)	(tons/year)
dimethyl phthalate	0.0014	0.00613
hexane	0.2568	1.12
methanol	0.0064	0.028
methyl isobutyl ketone (MIBK)	0.0016	0.00701
methyl methacrylate	0.1706	0.747
styrene	0.0344	0.151
toluene	1.8461	8.09
glycol ethers	0.4069	1.78
<b>TOTAL</b>	<b>2.72</b>	<b>11.9</b>

Total State Potential Emissions

### METHODOLOGY

HAPS emission rate (tons/yr) = HAPS emission rate (lbs /hr) \*(8760 hrs/yr) \*(1 ton/2000 lbs) as listed on Form Y

**Appendix A: Emissions Calculations  
Woodworking Emissions**

**Company Name:** Adorn, Inc.  
**Address City IN Zip:** 1808 West Hively Ave., Elkhart, IN 45617  
**County:** Elkhart  
**Permit #:** 039-8835  
**Plant ID:** 039-00324  
**Reviewer:** George Kunstek

**Potential Emissions from the Woodworking Operations with the following Baghouses**

		<u>Dust Collector Information</u>	
			Flow - ACFM
Throughput of Wood:	9300 Lbs/hr		
PM control equipment:	Dust Collector - Baghouse	B3	52300
Grain Loading:	0.02 grains/acf	B4	11300
Air Flow rate:	63600 acfm		
Control Efficiency:	99.90%		

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TOTAL            63600

After Control Emissions:

$$\begin{aligned} \text{Emissions: (gr/acf)(acf/min)(60 min/hr)(lb/7000 gr)} &= 10.903 \text{ lb/hr} \\ \text{(lb/hr)(ton/2000 lb)(8760 hrs/yr)} &= 47.75 \text{ tons/yr} \end{aligned}$$

Before Control Emissions:

$$\text{Emissions: (tons/yr) / (1-control efficiency) = 47754.5 tons/yr}$$

**Allowable Emissions From Woodworking**

$$\text{Wood throughput: (lbs wood/hr)(ton/2000 lb) = 4.65 tons/hr}$$

326 IAC 6-3-2 (Process Operations - Particulate emissions limitations)

$$E = 4.10P^{0.67} \quad \text{Where } E = \text{emissions in lbs/hr}$$

P = process weight rate in tons/hr

$$\begin{aligned} E &= (4.10)(\text{wood throughput})^{0.67} \\ &= 11.48 \text{ lbs/hr} \\ &= 50.2865 \text{ tons/yr} \end{aligned}$$

Since 47,800 tons per year (TPY) is greater than the allowable emission rate of 50.3, and since the potential emissions after controls is 47.8 TPY, which is less than the allowable emissions, then the controls are required for this facility. Actual PM emissions from the company are estimated to be 0.114 tons per year, based on 8760 hours per year. Silo emissions are considered negligible.

**Appendix A: Emission Calculations  
 Natural Gas Combustion Only  
 MM Btu/hr 0.3 - < 10  
 Commercial Boiler H1**

**Company N Adorn, Inc.**  
**Address Cit 1808 West Hively Ave., Elkhart, IN 45617**  
**CP: 039-8835**  
**Pit ID: 039-00324**  
**Reviewer: George Kunstek**  
**Date: 09-08-97**

Heat Input Capacity                      Potential Throughput  
 MMBtu/hr                                      MMCF/yr

0.6

4.9

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.2	0.0	0.1

**Methodology**

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**Appendix A: Emission Calculations  
 Natural Gas Combustion Only  
 MM Btu/hr 0.3 - < 10  
 Commercial Boiler H1**

**Company Name:** Adorn, Inc.  
**Address City IN Zip:** 1808 West Hively Ave., Elkhart, IN 45617  
**CP:** 039-8835  
**Plt ID:** 039-00324  
**Reviewer:** George Kunstek  
**Date:** 09-08-97

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

0.6

4.9

Pollutant

	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.2	0.0	0.1

**Methodology**

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**Appendix A: Emission Calculations  
 Natural Gas Combustion Only  
 MM Btu/hr 0.3 - < 10  
 Commercial Boiler H2**

**Company N Adorn, Inc.**  
**Address Cit 1808 West Hively Ave., Elkhart, IN 45617**  
**CP: 039-8835**  
**Plt ID: 039-00324**  
**Reviewer: George Kunstek**  
**Date: 09-08-97**

Heat Input Capacity                      Potential Throughput  
 MMBtu/hr                                      MMCF/yr

0.6

4.9

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons	0.0	0.0	0.0	0.2	0.0	0.1

**Methodology**

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

**Appendix A: Emission Calculations  
 Natural Gas Combustion Only  
 MM Btu/hr 0.3 - < 10  
 Commercial Boiler H2**

**Company Name:** Adorn, Inc.  
**Address City IN Zip:** 1808 West Hively Ave., Elkhart, IN 45617  
**CP:** 039-8835  
**Plt ID:** 039-00324  
**Reviewer:** George Kunstek  
**Date:** 09-08-97

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

0.6

4.9

Pollutant

	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.2	0.0	0.1

**Methodology**

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton





**Appendix A: Emissions Calculations  
Woodworking Emissions**

**Company Name:** Adorn, Inc.  
**Address City IN Zip:** 1808 West Hively Ave., Elkhart, IN 45617  
**County:** Elkhart  
**Permit #:** 039-8835  
**Plant ID:** 039-00324  
**Reviewer:** George Kunstek

**Potential Emissions from the Woodworking Operations with the following Baghouses**

		<u>Dust Collector Information</u>	
			Flow - ACFM
Throughput of Wood:	9300 Lbs/hr		
PM control equipment:	Dust Collector - Baghouse	B3	52300
Grain Loading:	0.02 grains/acf	B4	11300
Air Flow rate:	63600 acfm		
Control Efficiency:	99.90%		

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TOTAL            63600

After Control Emissions:

Emissions: Provided by the company = 0.0261 lb/hr  
 (lb/hr)(ton/2000 lb)(8760 hrs/yr) = 0.114 tons/yr

Before Control Emissions:

Emissions: (tons/yr) / (1-control efficiency) = 114 tons/yr

**Allowable Emissions From Woodworking**

Wood throughput: (lbs wood/hr)(ton/2000 lb) = 4.65 tons/hr

326 IAC 6-3-2 (Process Operations - Particulate emissions limitations)

$$E = 4.10P^{0.67} \quad \text{Where } E = \text{emissions in lbs/hr}$$

$$P = \text{process weight rate in tons/hr}$$

$$E = (4.10)(\text{wood throughput})^{0.67}$$

$$= 11.48 \text{ lbs/hr}$$

$$= 50.2865 \text{ tons/yr}$$

Since 114 tons per year (TPY) is greater than the allowable emission rate of 50.3, and since the potential emissions after controls is 0.114 TPY, which is less than the allowable emissions, then the controls are required for this facility. Actual PM emissions provided by the company are based on 8760 hours per year. Silo emissions are considered negligible.

## Indiana Department of Environmental Management Office of Air Management

### Addendum to the Technical Support Document for New Construction and Operation

Source Name: Adorn, Inc.  
Source Location: 1808 West Hively Ave., Elkhart, IN 45617  
County: Elkhart  
Construction Permit No.: CP-039-8835-00324  
SIC Code: 2490  
Permit Reviewer: George Kunstek

On October 16, 1997, the Office of Air Management (OAM) had a notice published in the Truth Publishing, Elkhart, Indiana, stating that Adorn, Inc. had applied for a construction permit to construct and operate a laminated and Corian counter top manufacturing facility, consisting of the following equipment: woodworking processes with two (2) baghouses and one (1) dust storage silo, roll surface coating operation, and two (2) 0.56 MM Btu per hour natural gas fired radiant heaters. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On November 10, 1997, Heaton Environmental Services submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows:

#### **Adorn, Inc. Comment**

1. Page 1 of 5 of the TSD, Source Definition states that the source was previously known as Bristol Laminating, Inc. prior to the name change. Bristol Laminating Inc. will not undergo a name change. Additionally, all facilities at the Bristol Laminating source will remain at the permitted source location and continue to operate under the name of Bristol Laminating, Inc.. The original intention was to move all Bristol Laminating facilities to the Adorn Inc. source. Due to production circumstances, the Bristol Laminating source will remain at the present location. The facilities depicted in the construction permit application will be purchased as new equipment and added to the Adorn, Inc. source.

#### **OAM Response**

1. The reference in the TSD was based on line 6 of Form A-C of the application. OAM now understands that the reference to Bristol Laminating was based on existing equipment coming from that location to this site, but now all equipment will be purchased new. Adorn is a major source for HAP emissions as stated in the Part 70 application, but is not a major source for purposes of Prevention of Significant Deterioration (PSD).

#### **Adorn, Inc. Comment**

2. Page 2 of 5 of the TSD states both the allowable and potential tons of combined HAPs to be 2.72 tons per year. This appears to be the calculated rate for combination of HAPs in pounds per hour. Per page 5 of 5 of the TSD Appendix A, The potential emissions in tons per year for combination of HAPs 11.93.

**OAM Response**

2. Combination of HAPs listed in Total Potential and Allowable Emissions table should read 11.9 tons per year (TPY) and not 2.72.

**Adorn, Inc. Comment**

3. Page 3 of 5 of the TSD under Total Potential and Allowable Emissions (c), it is stated that the allowable emissions of particulate matter and volatile organic compound pollutants are greater than 25 tons per year. Per page 2 of 5 of the TSD and page 3 of 5 of the TSD Appendix A Emission Calculations, the source has the potential VOC emissions of 24.54 tons per year. Please eliminate the inclusion of VOC in this statement.

**OAM Response**

3. A construction permit is required because PM emissions only are greater than 25 TPY and not VOC.

**Adorn, Inc. Comment**

4. My knowledge of the Wood Furniture NESHAP (Subpart JJ) is that the applicability is to sources which are major sources as defined by 40 CFR part 63.2. Per pages 3, 4, and 5 of the TSD Appendix A, emissions of all criteria pollutants are below the definition of a major source. Please eliminate the statement of Federal Rule Applicability on page 4 of 5 of the TSD, section 16 of the permit conditions (the Wood Furniture NESHAP Conditions), and adjust the fee permit billing to a total of \$3,500.

**OAM Response**

4. Applicability of NESHAP JJ is based on existing and proposed HAP emissions from wood furniture manufacturing activities and not from criteria pollutants. OAM believes NESHAP JJ applies to this facility, based on the application for this facility, as well as the Title V application for the entire source. OAM will issue the permit only after all the appropriate fees are collected.

**Adorn, Inc. Comment**

5. Several Additional pieces of equipment are wished to be added to the construction permit. The equipment will be PM producing facilities with no VOC and/or HAP emissions. The new equipment will consist of a new gang saw, high speed molder, a wood grinder, and an edge glue machine. The glue in the edge glue machine will utilize a wood glue which contains no VOC or HAPs. The gang rip multi saw, high speed molder, and wood grinder will be connected to the dust collection system included in the construction permit (application).

**OAM Response**

5. Since there are no increases in allowable emissions, and since these activities were over looked by

the company and not clearly described in the application, but intended to be in the application, then these additional activities shall be covered by this permit.

On November 24, 1997, Heaton Environmental Services submitted an additional comment on the proposed construction permit. The summary of the comment and corresponding response is as follows:

**Adorn, Inc. Comment**

1. In response to our conversation regarding the combined levels of VOC emissions from both the existing source and the new construction, Adorn, Inc. is formally requesting a Federal Synthetic Minor. It is requested that the synthetic limits apply to the entire source and include all emissions facilities at the source to be limited to below 250 tons per year for all criteria pollutants.

**OAM Response**

1. The OAM has added Condition No. 8 that limits the VOC as follows: That the total amount of volatile organic compounds (VOC) delivered to the applicator including clean-up solvents shall not exceed 41,500 pounds per month (249 tons per year). Satisfaction of this condition and all other Operation Conditions shall render Prevention of Significant Deterioration Rule 326 IAC 2-2 not applicable in this case.