



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Central Regional Office, 627 Main Street, Worcester, MA 01608

ANE SWIFT  
Governor

BOB DURAND  
Secretary

LAUREN A. LISS  
Commissioner

July 12, 2002

Moduform, Inc.  
172 Industrial Road  
Fitchburg, MA 01420

Attention: Michael Dunfee

Re: CR - Fitchburg  
BWP-AQ 02  
Wood & Vinyl Furniture Product  
Finishing Operations TR# W025552  
FMF #17569 FMF Classification SM1000  
SSEIS #118/0016  
**APPROVAL**

Dear Mr. Dunfee:

The Department of Environmental Protection, Bureau of Waste Prevention, permitting Section (the "Department") has reviewed the plans, specifications, Standard Operating procedures and Standard Maintenance Procedures for the proposed installation and operation of wood and vinyl furniture manufacturing with emissions of Volatile organic Compounds ("VOC") and Hazardous Air Pollutants ("HAP") at Moduform, Inc., 172 Industrial Road, Fitchburg, Massachusetts facility as submitted under the seal and signature of J. Andrew Irwin, P.E. No. 38963.

The Department is of the opinion that the material submitted is in conformance with the current Massachusetts Air Pollution Regulations and in accordance with 310 CMR 7.02 and hereby APPROVES the application subject to the emission limits, special conditions, record keeping, reporting, and general conditions noted herein. This Approval also sets long term federally enforceable VOC and HAP emission limits below the Federal Wood Furniture RACT CTG and Title V National Emission Standards for Hazardous Air Pollutants thresholds for Wood Furniture Manufacturing Operations.

The Department has determined that the filing of an Environmental Notification Form ("ENF") with the Secretary of Environmental Affairs, for air quality control purposes, was not required prior to this action by the Department. Notwithstanding this determination, the Massachusetts Environmental Policy Act ("MEPA") and Regulation 301 CMR 11.00, Section 11.03, provide certain "Fail-safe Provisions" which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report at a later time.

A list of submitted information pertinent to the application is delineated below. Enclosed is a stamped approved copy of the pertinent information.

Moduform, Inc TR# W025552

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This Decision is an action of the Department. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this approval. Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Decision is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to: Commonwealth of Massachusetts, Department of Environmental Protection, P.O. Box 4062, Boston, Massachusetts 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency) county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Yours truly,



Thomas P. Cusson

Section Chief,  
Bureau of Waste Prevention

Date 7/14/02

TPC/DN/le

Enclosure:

Cc: Fitchburg Board of Health  
Yi Tian, DEP Boston  
Dana Samuelson, DEP CERO  
J. Andrew Irwin, Irwin Engineers, Inc.

**MODUFORM, INC.**  
**TR# W02552**  
**PLAN APPROVAL - 7/12/2002**

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I. GENERAL INFORMATION

A. Moduform, Inc. (the "Permittee") manufactures institutional furniture for health care, correctional, military and educational markets. Furniture products include chairs, tables and cabinets. Manufacturing steps include vinyl molding and vinyl surface coating, foam injection of fabricated cushions, woodworking, wood finishing and miscellaneous metal parts coating. Volatile Organic Compounds ("VOC") and Hazardous Air Pollutants ("HAP") and particulates are emitted from the facility.

B. A Consent Order and notice of Noncompliance (ACOP-CE-99-9008-2, 7,B) dated January 27, 2000 required the Permittee to submit a new 310 CMR 7.02 Air Quality Plan Approval application for the modified coating operations at the Fitchburg facility and continue to develop and implement a major product substitution program to achieve compliance with the emission limits for the various types of surface coating categories as contained in 310 CMR 7.18.

C. The use of Pollution Prevention technologies that include coating reformulation and input substitution, process redesign, good housekeeping and the recycling and reuse of cleaning solvents resulting in lower VOC/HAP emissions per unit of furniture, is consistent with the requirements of Best Available Control Technology, in accordance with the provisions of 310 CMR 7.02. The Permittee has successfully reformulated non-compliant solvent based coatings in the vinyl production process to water based formulations, reducing VOC levels below the 310 CMR 7.18(16) – "Vinyl Surface Coating" short term emission limits. The flat-line finishing system utilizes UV cured 100% solids and the use of roller

brushes for high transfer efficiency. Water based adhesives and clamps or presses are used for the majority of flat part gluing and laminating, reducing and replacing solvent based adhesive use. All spray booths utilize HVLP type spray guns. Acetone, a hydrocarbon (HYC) cleaning solvent, is recycled and reused.

## II. PROJECT DESCRIPTION

A. The Permittee utilizes VOC/HAP in the application of surface coatings for metal, vinyl and wood during the assembly and finishing of wood and vinyl furniture products. These operations are conducted in nine booths. They include:

- three conventional booths used interchangeably for vinyl, metal and wood finishing;
- three electrostatic booths for wood finishing;
- one booth for sealing wood end grain;
- one stain wiping or spraying application booth; and
- one spray application of air-dried edge coating.

B. Wood working operations include receiving and storing rough mill lumber, planning, sanding and cutting wood stock. Particulates generated from the various woodworking processes are manifolded into a central dust collection system. Wood particulates are removed by the use of a baghouse. The cleansed exhaust is recirculated back into the facility. The collected wood dust is pneumatically transported to an enclosed truck box trailer.

C. Assembly of wood pieces may involve the spray application of a sealer for end grain and the use of rolled or brushed adhesives for laminating edges.

D. Wood finishing operations include the application of stain or toners by wipers or by spray gun. The Permittee utilizes premixed and custom blended stains and toners. A roll coat line applies a UV-cured finish onto one side of flat pieces and then is cured in one of two flat-line ovens. Shaped pieces are spray coated with UV-cured topcoat finishes and then conveyed through one of two cure ovens.

E. The vinyl cushion operations include miscellaneous metal finishing, molding, foam injection and finishing. A metal frame or rack is inserted into the vinyl cushion to allow mounting of the cushion to the furniture. This frame is primed with a coating to promote adhesion of the vinyl to the frame. The coating is applied by brush and then air-dried. Vinyl cushion skins are produced through rot molding. The vinyl suspension including pigment is blended in batches and loaded into the rot molder with the coated frame inserted. The mold is heated and cooled to form the vinyl skin. A two-part reactive urethane foam is injected into the internal frame. The surfaces of the filled vinyl cushions are finished with a color pigmented topcoat in the spray booths.

III. SHORT AND LONG TERM EMISSION LIMITS

The following short and long-term emission limits noted in the following tables shall not be exceeded:

Table 1 - Short Term Wood Furniture Finishing Emission Limits	
Coating Type	Emission Limit (Lbs. VOC/Gal. Solids As Applied)
Semitransparent Stain	89.4
Wash Coat	35.6
Opaque Stain	13.0
Sealer	23.4
Pigmented Coat	15.6
Clear Topcoat	23.4
Toner/Custom Stain	6.6

As applied minus water and exempt non-photo chemically reactive VOC

<sup>2</sup> Lbs. VOC/Gal. = Pounds of Volatile Organic Compounds per gallon

Table 2 - Short Term Vinyl Coating Emission Limits	
Coating Type	Emission Limit (Lbs. Voc/Gal. Solids As Applied)
Vinyl	7.8

Table 3 - Short Term Miscellaneous Metal Parts & Products Emission Limits	
Coating Type	Emission Limit
Miscellaneous Metal	5.1

Table 4 - Facility Wide Long Term Emission Limits			
Emission Source	Acetone (Tons)	VOC (Tons)	HAPs (Tons)
Furniture Finishing		17	<6 Combined
Vinyl Coating	N/A	9	2.5
Misc. Metal Coating		<0.1	<0.1
Adhesives/Foam		4.5	4.5
Cleaning Solvent	2	N/A	N/A
Facility Wide	2	29	<6 Individual <12 Combined

<sup>3</sup> Consecutive rolling twelve-month totals

<= less than

N/A = not applicable

## IV. SPECIAL CONDITIONS

A. The Permittee shall maintain continuous compliance with all short and long term emission limits as noted in Tables 1-4. Coatings used in small amounts are exempted from the limits in Tables 1-3 provided the following conditions are met:

1. the total amount of all coatings exempted does not exceed 55 gallons on a rolling twelve-month period at the facility;
2. the Permittee notifies the Department that this exemption is being used 30 days prior to its first use; and
3. the Permittee identifies the coatings that will be covered by this exemption, long term for stain/toners.

B. The Permittee shall notify the DEP Central Regional Office, BWP Compliance and Enforcement Section immediately when a noncompliant situation is identified and shall submit a letter within 3 working days describing the noncompliant situation and corrective actions taken.

C. Good housekeeping is defined as storing, using and disposing of VOC in a manner, which will minimize evaporation to the atmosphere. Proper storage shall be in a container with a tight fitting cover. The Permittee shall dispose of VOC material in a manner consistent with Federal and State hazardous Waste Regulations. All used wiping rags shall be stored in a covered container.

D. Spray guns shall utilize High Volume Low Pressure (HVLP) application and be operated in accordance with the recommendations of the manufacturer.

E. Each paint spray booth shall utilize two or more layers of dry fiber mat filter with a total thickness of at least two inches, that achieves particulate control efficiency of at least 97% by weight. Filter material shall be disposed of in accordance with all applicable DEP regulations.

F. Face velocity of air at filter shall not exceed 200 feet per minute.

G. Spray gun cleaning shall be performed inside a totally enclosed gun washer system and any used cleanup solution shall be recirculated or stored or disposed of in a manner, which will minimize evaporation to the atmosphere. Proper storage shall be in a container with a tight fitting cover.

H. Acetone emissions to the ambient air per calendar month shall not exceed 200 pounds.

I. Spray booths shall have a stack conforming to the following criteria:

1. The stack shall discharge vertically upwards.
2. The stack shall not have rain protection of a type that restricts the vertical exhaust flow.
3. The stack gas exit velocity shall be greater than 40 feet per second.
4. The minimum stack height shall be a minimum of ten feet above roof level.

J. Paint booth stack emissions shall have 0% opacity.

## V. RECORD KEEPING REQUIREMENTS

A. The Permittee shall prepare and maintain sufficient records to demonstrate compliance with the long and short-term emission limits. Such records shall include, but are not limited to:

1. For each coating, as applied:
  - a) gallons of coatings used;
  - b) coating density (pounds per gallon);
  - c) pounds of VOC/HAP per gallon of coating;
  - d) pounds of solids per gallon of coating;
  - e) pounds of water per gallon of coating;
  - f) pounds of other non-VOC liquid per gallon of coating;
  - g) pounds of VOC per gallon of solids as applied; and
  - h) classification of coating type by definition for BACT and CTG-RACT short term limit documentation.
2. Acetone/Cleaning solvent use, gallons used and pounds VOC/HYC per gallon.
3. Calendar month records to demonstrate compliance with the consecutive twelve month rolling long-term facility wide VOC/HAP limits.
4. Maintenance records of filter pad replacement and disposal.

B. All records shall be kept on site for five (5) years and shall be made available to the DEP upon request.

## VI. REPORTING REQUIREMENTS

Annual - In accordance with 310 CMR 7.12(2)(a), the Permittee shall register, on a form obtained from the Department, such information as the Department may specify including:

1. The nature and amounts of emissions from the facility.
2. Information, which may be needed to determine the nature and amounts of emissions from the Permittee.
3. Any other information pertaining to the Permittee's production, which the Department requires.

## VII. TESTING REQUIREMENTS

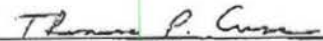
The Permittee shall, upon request of the Department, perform or have performed tests to demonstrate compliance with the short-term emission limits as noted in Tables 1-3. Any emission testing to be compared to limitations in this approval must be conducted in accordance with the Environmental Protection Agency Test method 24 as specified in the Code of Federal Regulations, Title 40, Part 60, Appendix A Standards of Performance for New Stationary Sources, or by another method correlated to the above method, to the satisfaction of the Department and EPA in accordance with the requirements noted in 310 CMR 7.13.

## VIII. GENERAL CONDITIONS

A. OPERATION - No person shall operate this facility except in conformance with the requirements established in this Approval.

- B. **SUSPENSION** - This approval may be suspended, modified, or revoked by the Department if, at any time, the Department determines that the facility is violating any condition or part of the approval.
- C. **OTHER REGULATIONS** - This approval does not negate the responsibility of the Permittee, the owner or the operator and their assignees to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this approval imply compliance with any other applicable federal, state or local regulation now or in the future.
- D. **NOISE** - Noise from the facility during routine operation, including startups and shutdowns, shall not exceed the Department noise guidelines and shall not cause a condition of air pollution as defined in regulation 310 CMR 7.01 and 310 CMR 7.10.
- E. **MODIFICATIONS** - Any modifications to plant equipment or modifications to operating and maintenance practices as approved herein must first be approved in writing by the Department. Any increases in emissions above the limits contained in this Approval must first be approved in writing by the Department pursuant to 310 CMR 7.02. Increases in emissions may also subject the facility to additional regulatory requirements.
- F. **REMOVAL OF AIR POLLUTION CONTROL EQUIPMENT** - No person shall cause, suffer, allow, or permit the removal, alteration or shall otherwise render inoperative any air pollution control equipment or equipment used to monitor emissions which has been installed as a requirement of 310 CMR 7.00, other than for reasonable maintenance periods or unexpected and unavoidable failure of the equipment, provided that the Department has been notified of such failure, or in accordance with specific written approval of the Department.
- G. **INSPECTIONS** - Department personnel shall have access to the plant site, buildings, and all pertinent records for the purpose of making inspections, surveys, collecting samples, obtaining data and reviewing records during reasonable times.

For the Department



Thomas P. Cusson  
Section Chief

Bureau of Waste Prevention - Central Region

LIST OF PERTINENT INFORMATION, TR #W028066

Name of Facility: Moduform, Inc.  
Location: Fitchburg, Massachusetts  
Submitted By: Irwin Engineers, Inc.  
Attested To By: J. Andrew Irwin, P.E. No. 38968

Design Data Sheets: BWP AQ CPA-3 Non-fuel Emissions  
BWP AQ SFP-1 Paint Spraying