

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	1 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

**PERMIT TO CONSTRUCT EVALUATION
SPRAY BOOTH**

Applicant's Name	ARCHITECTURAL WOODWORKING CO.
Company I.D.	0222
Mailing Address	582 S. MONTEREY PASS RD., MONTEREY PARK, CA 91754
Equipment Address	582 S. MONTEREY PASS RD., MONTEREY PARK, CA 91754

EQUIPMENT DESCRIPTION

Application No. 517282 (Modification, Previous P/N D34962, A/N 296111)

SPRAY BOOTH, FLOOR TYPE, BINKS, 30' – 0" W. X 12' – 0" L. X 9' – 0" H, WITH EIGHTY-FIVE 20" X 20" EXHAUST FILTERS, TWO 5 H. P. & ONE 3 H.P. EXHAUST FANS AND ONE AIR MAKE-UP UNIT , INDUSTRIAL AIR SYSTEMS, MODEL NO. DAC 225-HBR WITH A 3,808,350 BTU/HR NATURAL GAS-FIRED MIDCO H-1300 BURNER.

Application No. 517283

TITLE V REVISION

HISTORY

Architectural Woodworking Co. submitted above application for Permit to Operate to include the natural gas-fired air make-up unit to their existing spray booth. The heater unit was noticed by the District inspector during the last inspection. The inspector issued a notice to comply (E04027) to apply for the modification of the permit.

Initially the applicant proposed to install Rule 1147 compliant burners in the air make-up unit. However, they changed their mind and decided to come in compliance with Rule 1147 by the due date of July 1, 2013.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	2 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

The facility currently operates a spray booth & an oven at this location, and they are permitted under the District I.D. 222. The applicant has not requested any changes in the manufacturing process under this project. The company manufactures high-end office furniture at this facility. The above equipment is used to apply coatings for external aesthetics. The make-up air unit on the spray booth is used sparingly to maintain the temperature in the spray booth in the winter. The coatings used in this equipment comply with Rule 1136 VOC requirements.

A facility-wide VOC emission limit of 325 lbs/day has been established for this location. The applicant has not requested any increases in the facility-wide VOC emission limit under this project. Thus, no VOC offsets are required for this project. The applicant has accepted 7692 cubic feet natural gas usage limit for the booth, which will have less than 1 pound of NOx emissions per day. Thus, NOx BACT will not trigger for this project.

The district database shows no notice of violation issued to this company in the last two years. The database shows two notices to comply were issued to this facility in last two years to provide correct records and to apply for modified spray booth. The facility now operates “in compliance” upon follow-up inspections. Also, the database shows no complaint against this facility for nuisance odors or visible emissions in the last two years.

Architectural Woodworking Co. is a Title V facility. A Title V renewal permit was issued to this facility in May 6, 2007. This is the first revision to the renewed Title V permit. The proposed permit revision is considered as a “de-minimis permit revision”, as described in Regulation XXX evaluation.

PROCESS DESCRIPTION

The company is in the high-end office furniture manufacturing business. The furniture is spray coated using liquid coatings in the spray booth and then heat dried. The spray booth has regular 2” thick particulate arrestor filters. The filter system is 90.00% efficient in controlling PM/PM10 emissions. Coatings are applied using HVLP spray equipment. The recent inspection report indicates that they use HVLP spray guns in the booth. The spray guns are cleaned by Rule 1171 compliant (acetone) gun cleaning solvent within an enclosed gun washer. The soiled rags are stored in closed container for later disposal.

The inspection report indicates primer with 1.4 lb/gal VOC, varnish with 2.3 lb/gal VOC, stain with 1.0 lb/gal VOC is used at this site.

OPERATING HOURS

Average : 24 hour/day, 7 day/week, 52 weeks/year
Maximum: 24 hour/day, 7 days/week, 52 weeks/year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	4 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

Combustion emissions:

This equipment is heated with a 3.808 mm BTU/HR burner. The following table provides data on the emissions from the natural gas combustion. The applicant has accepted 7,692 cubic feet natural gas usage limit for the booth to stay below the BACT threshold of 1 lb/day of any criteria contaminant, which is equivalent to a non-BACT burner of 336,525 BTU/HR.

Spray Booth Heater

	maximum	normal					
hr/dy	24	24		max heat input	3.36E+05	(BTU/hr)	
dy/wk	7	7		gross heating value	1050	(BTU/scf)	
wk/yr	52	52					
<u>load</u>	100%	100%					

	<u>Emission</u>	<u>MAX</u>	<u>AVE</u>	<u>MAX</u>	<u>30-DAY</u>	<u>MAX</u>	<u>MAX</u>
	Factors	(lb/hr)	(lb/hr)	(lb/dy)	(lb/dy)	(lb/yr)	(ton/yr)
SO ₂ (R1)	0.83	0.000	0.000	0.006	NA	2	0.001
SO ₂ (R2)	0.83	0.000	0.000	0.006	0.006	2	0.001
NO ₂ (R1)	130	0.042	0.042	0.998	NA	363	0.182
NO ₂ (R2)	130	0.042	0.042	0.998	0.998	363	0.182
CO (R1)	35	0.011	0.011	0.269	NA	98	0.049
CO (R2)	35	0.011	0.011	0.269	0.269	98	0.049
PM, PM ₁₀ (R1=R2)	7.5	0.002	0.002	0.058	0.058	21	0.010
TOC (R1=R2)	7	0.002	0.002	0.054	0.054	20	0.010
acetaldehyde	0.0043	1.4E-06	1.4E-06	3.3E-05	NA	1.20E-2	6.01E-6
acrolein	0.0027	8.6E-07	8.6E-07	2.1E-05	NA	7.55E-3	3.77E-6
ammomonia	3.2	1.0E-03	1.0E-03	2.5E-02	NA	8.95E+0	4.47E-3
benzene	0.008	2.6E-06	2.6E-06	6.1E-05	NA	2.24E-2	1.12E-5
ethyl benzene	0.0095	3.0E-06	3.0E-06	7.3E-05	NA	2.66E-2	1.33E-5
formaldehyde	0.017	5.4E-06	5.4E-06	1.3E-04	NA	4.75E-2	2.38E-5
hexane	0.0063	2.0E-06	2.0E-06	4.8E-05	NA	1.76E-2	8.81E-6
naphthalene	0.0003	9.6E-08	9.6E-08	2.3E-06	NA	8.39E-4	4.19E-7
PAH's	0.0001	3.2E-08	3.2E-08	7.7E-07	NA	2.80E-4	1.40E-7
propylene	0.731	2.3E-04	2.3E-04	5.6E-03	NA	2.04E+0	1.02E-3
toluene	0.0366	1.2E-05	1.2E-05	2.8E-04	NA	1.02E-1	5.12E-5
xylenes	0.0272	8.7E-06	8.7E-06	2.1E-04	NA	7.60E-2	3.80E-5

NO ₂ @ 3% excess O ₂ ----->>>	100.16	(ppmv)	SO ₂ @ 3% excess O ₂ ----->>>	0.46	(ppmv)
CO @ 3% excess O ₂ ----->>>	44.29	(ppmv)	EM @ 12% CO ₂ ----->>>	5.5E-09	(grain/ft ³)

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	5 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

The emission factor for a conventional natural gas burner is 130 lb-NOx per million cubic feet of natural gas.

$$\begin{aligned}
 1 \text{ lb-NOX} &= (1 \text{ lb-NOx}/130 \text{ lb-NOx}) (1,000,000 \text{ cubic feet}) \\
 &= 7,692 \text{ cubic feet}
 \end{aligned}$$

$$\begin{aligned}
 \text{BTU/hr} &= 7,692 \text{ cubic feet/day} \times 1,050 \text{ btu/cubic feet} \times \text{day}/24 \text{ hrs} \\
 &= 336,525 \text{ btu/hr}
 \end{aligned}$$

The applicant has accepted 7,692 cu. feet per day natural gas usage limit, so that they comply with the BACT requirements.

NOx Emissions from Natural Gas usage of 7,692 SCF/day:

$$= (130 \text{ lb}/1 \times 10^6 \text{ SCF}) \times 7,692 \text{ SCF/day} = 1 \text{ lb/day} (0.04 \text{ lb/hr})$$

Toxic Emissions:

There will be no increase in the VOC emissions under this project. Thus compliance with Rule 1401 is expected from the coating usage.

There will be increase in the toxic emissions from the natural gas combustion. However, with the natural gas usage limited to <7,692 cu. feet per day, combustion emissions are expected to comply with the Rule 1401 requirements.

RULES/REGULATION EVALUATIONS

▫ **RULE 212, PUBLIC NOTIFICATION**

v **SECTION 212(c)(1):**

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

v **SECTION 212(c)(2):**

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). The applicant has not requested any VOC emission increases under this project. As shown in the following table, the emission increases from natural gas combustion under this project are below the daily maximum limits specified by Rule 219(g). Therefore, this application will not be subject to this section.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	6 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	1	0	0	0	0

▼ **SECTION 212(c)(3):**

There are emission increases from the coating usage under this project. The cancer risk increase from the natural gas combustion is expected to less than 1 in ia million. Therefore, this application will not be subject to this section.

▼ **SECTION 212(g):**

This section requires a public notice for all new or modified sources which undergo construction or modifications resulting an emissions increase exceeding any of the daily maximum specified in the table below. The applicant has not requested any VOC emission increases under this project. As shown in the following table, the emission increases from natural gas combustion under this project are below the daily maximum limits specified by Rule 219(g). Therefore, this application will not be subject to this section.

LB/DAY	CO	NOX	PM ₁₀	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	1	0	0	0	0

▣ **RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE**

(a) **SPRAY BOOTH**

With the use of 2" thick dry filters in liquid coating booth compliance with the provisions of these rules is expected. AQMD database has no records of any visible emissions or nuisance complaints against this company.

▣ **RULES 404 & 405, PARTICULATE MATTER CONCENTRATION & WEIGHT**

Compliance with these provisions is expected with proper operation of the equipment.

▣ **RULE 481, SPRAY COATING OPERATIONS**

▼ **SECTION (a)**

The use of HVLP spray equipment will comply with these requirements.

⊙ **RULE 1136, COATING OF WOOD PRODUCTS**

❖ **SECTION (C)(1), VOC CONTENT OF COATINGS**

There are no changes in the coating operation under this project. The last District inspector's report indicates that the company uses compliant coatings and solvents at this facility.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	7 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

❖ **SECTION (c)(2), TRANSFER EFFICIENCY**

The use of HVLP spray equipment satisfies the provisions of this section.

⊙ **RULE 1171, SOLVENT CLEANING OPERATIONS**

Company uses water or Acetone, an exempt VOC, for spray equipment clean-up operations. The cleaning operation is performed in an enclosed gun-cleaner which comply with the rule requirements. Thus, compliance with rule requirements is expected.

REGULATION XIII

▣ **RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)**

(a) VOC EMISSIONS

There will not be any VOC emission increases under this project. Thus, BACT will not trigger for this project. .

(b) PM10 EMISSIONS

The use of 2” thick filtering system satisfies BACT requirement for PM10 emissions.

(c) NOx EMISSIONS

The NOx emissions are expected to be less than 1 lb/day with the natural gas usage limit of 7,692 SCF/day, therefore BACT is not triggered. Permit conditions will be imposed to ensure compliance.

▣ **RULE 1303(b)(1), MODELING**

Modeling is not required since PM10, and CO emissions are below the Table A-1 allowable emissions. Modeling required for NOx. Please refer to attached modeling which shows compliance.

NOx		PM10		CO	
Allowed	Actual	Allowed	Actual	Allowed	Actual
0.20	0.042	1.2	0.002	11.0	0.013

▣ **RULE 1303 (b)(2), EMISSION OFFSETS**

There are no VOC emission increases under this project, since the facility cap will remain the same. Other emissions from the natural gas combustion are within the R1304 threshold limits. Hence, no offsets are required.

▣ **RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS**

There will be no change in the VOC emissions from the coating usage under this project. Also, from the previous emission calculations data, the toxic emissions from the natural gas combustion of a 339,000 BTU/HR burner are also expected to comply with the rule requirements. This equipment is expected to comply with these rule requirements.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION <i>Large Coating, Printing and Chemical Operations Team</i> APPLICATION PROCESSING AND CALCULATIONS	PAGE	8 of 9
	APP. NUMBER	517282
	PROCESSED BY	SMP
	REVIEWED BY	
	DATE	2/1/11

© **RULE 1469.1, SPRAYING OPERATIONS USING COATINGS CONTAINING CHROMIUM**

The materials used in this equipment do not contain any chromium compounds. A permit condition will be imposed not to use any chromium compound containing materials in this equipment.

REGULATION XXX

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx	40
PM10	30
SOx	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the 1st permit revision to the Title V renewal permit issued to this facility on May 6, 2007. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

Revision	HAP	VOC	NOx	PM ₁₀	SOx	CO
1 st Revision, Modification of the spray booth(A/N 517282)	0	0	1	0	0	0
Total	0	0	1	0	0	0
Maximum Daily	30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGE	9 of 9
ENGINEERING AND COMPLIANCE DIVISION	APP. NUMBER	517282
<i>Large Coating, Printing and Chemical Operations Team</i>	PROCESSED BY	SMP
APPLICATION PROCESSING AND CALCULATIONS	REVIEWED BY	
	DATE	2/1/11

RECOMMENDATION

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not have any objections within the review period, a revised Title V permit will be issued to this facility.