



December 17, 2020

Bryce Bird
Director
Utah Division of Air Quality
195 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

SUBJECT: TRANSMITTAL OF NOTICE OF INTENT APPLICATION

RE: Stadler Rail
5880 W 150 S
Salt Lake City, Utah 84104

Dear Mr. Bird:

On behalf of our clients, Stadler Rail, RMEC Environmental, Inc. is providing the Utah Division of Air Quality (UDAQ) with the enclosed Notice of Intent (NOI) Application and supporting documentation for the above-referenced facility located in Salt Lake City, Utah.

You will find the following application materials transmitted herewithin:

- UDAQ Form 1: Notice of Intent
- Appendix A: Project Narrative and Process Information
- Appendix A: Site Plan Information
- Appendix C: Emission Information
- Appendix D: UDAQ Form 1a
- Appendix E: Source Size Determination
- Appendix F: Offset Requirements
- Appendix G: BACT Analysis
- Appendix H: Equipment Controls Information

If you have any questions, concerns, or need any additional information, please feel free to contact me at the RMEC offices at (801) 467-3661, or by email: dnye@rmec.net.

Sincerely,

Daniel E. Nye, MSPH, CIH
Senior Scientist
RMEC ENVIRONMENTAL, INC.

Cc: Stephen Forster / Stadler Rail



**Utah Division of Air Quality
New Source Review Section**

Date 12/18/20

**Form 1
Notice of Intent (NOI)**

Application for: Initial Approval Order Approval Order Modification

APPROVAL ORDER MUST BE ISSUED BEFORE ANY CONSTRUCTION OR INSTALLATION CAN BEGIN. This is not a stand alone document; please refer to UAC R307-401 and the published NOI guidebook for information on requirements of the specified information below. Please print or type all information requested. All outlined information requested must be accurate and completed before DAQ can determine that an NOI is complete and an engineering review can be initiated. If you have any questions, contact the Division of Air Quality at (801) 536-4000 and ask to speak with a New Source Review Engineer. Written inquiries may be addressed to: Division of Air Quality, New Source Review Section, P.O. Box 144820, Salt Lake City, Utah 84114-4820.

General Owner and Facility Information

R307-401-5(2)(k)

<p>1. Filing Fee Paid*</p> <p>3. Company name and address: Stadler Rail 5880 W 150 S Salt Lake City, Utah 84104</p> <p>Phone No.: 801-854-7771</p> <p>Fax No.:</p>	<p>2. Application Fee Paid*</p> <p>4. Company** contact for environmental matters: Stephen Forster</p> <p>Phone no.: 801-970-1221</p> <p>Email: Stephen.Forster@stadlerrail.com</p> <p><i>** Company contact only; consultant or independent contractor contact information can be provided in a cover letter</i></p>
<p>5. Facility name and address (if different from above):</p> <p>Phone no.:</p> <p>Fax no.:</p>	<p>6. Owners name and address: Stadler Bussnang AG Ernst-Stadler-Strasse 4 9565 Bussnang Switzerland Phone: +41 (0) 71 626 21 20</p> <p>Phone no.: +41(0)71626212</p> <p>Fax no.:</p>
<p>7. Property Universal Transverse Mercator coordinates (UTM), including System and Datum: Easting: 412999</p> <p>Northing: 4513484</p> <p>System: UTM Zone 12</p> <p>Datum: NAD83</p>	<p>8. County where the facility is located in: Salt Lake</p> <p>9. Standard Industrial Classification Code: 3737</p>

Emissions Information

20. Appendix C: Emission Calculations that must include:

- Emissions per new/modified unit for each of the following: PM₁₀, PM_{2.5}, NO_x, SO_x, CO, VOC, and HAPs
 - Designation of fugitive and non fugitive emissions
 - Major GHG Sources: Emissions per new/modified unit for GHGs (in CO₂e short tons per year)
 - References/assumptions for each Emission Factor used in calculating Criteria pollutant, HAP, and GHG emissions
 - HAP emissions (in pounds per hour and tons per year) broken out by specific pollutant and summed as a total
- R307-401-5(2)(b)

21. Appendix D: DAQ Form 1a or equivalent (comparison of existing emissions to proposed emission and resulting new total emissions)

22. Appendix E: Source Size determination (Minor, Synthetic Minor, Major, or PSD)
 If an Existing Major Source: Determination of Minor, Major or PSD modification

23. Appendix F: Offset requirements (nonattainment/maintenance areas)

- Acquired required offsets

R307-401-420 & R307-401-421

Air Pollution Control Equipment Information

24. Appendix G: Best Available Control Technology (BACT) analysis for the proposed source or modification

R307-401-5(2)(d)

25. Appendix H: Detailed information on all new/modified equipment controls. It is strongly recommended using DAQ forms as they outline required information, but something equivalent to the DAQ forms is acceptable.

R307-401-5(2)(c)

26. Appendix I: Discussion of Federal/State requirement applicability (NAAQS, SIP, NSPS, NESHAP, etc)

Modeling Information

27. Appendix J: Emissions Impact Analysis (if applicable)

R307-410-4

Electronic NOI

28. A complete and accurate electronic NOI submitted

R307-401-5(1)

I hereby certify that the information and data submitted in and with this application is completely true, accurate and complete, based on reasonable inquiry made by me and to the best of my knowledge and belief.

Signature: 

Title: Safety and Environmental

Stephen Forster

801-284-5100

12/17/20

Name (print)

Telephone Number:

Date:

**with the exception of Federal Agencies who will be billed at completion of the project*

Appendix A

Project Narrative and Process Information

Stadler Rail – Salt Lake City, Utah

PROJECT NARRATIVE

Stadler Rail (Stadler) operates a commuter railcar manufacturing shop at 5880 W 150 S, Salt Lake City, UT 84104. Based on past air pollutant emissions, Stadler qualified for a Small Source Exemption under the State of Utah Air Quality Rules. Due to recent increased manufacturing work at the Salt Lake City location, Stadler's Hazardous Air Pollutant (HAP) emissions will exceed the Small Source Exemption thresholds. As such, Stadler has contracted with RMEC Environmental, Inc. (RMEC) to assist in the preparation of this Notice of Intent (NOI) to obtain an Approval Order from the Utah Division of Air Quality.

PROCESS NARRATIVE

Process and Emission Information

Stadler's railcar manufacturing processes take place in one large shop building at the site, in a large two bay paint booth. Expected annual production is approximately 25 railcars per year. The processes involve several steps that result in emissions of some criteria pollutants, volatile organic compounds (VOCs), and some Hazardous Air Pollutants (HAPs). Emissions from the facility can be broadly classified as originating from the following types of sources: 1) painting and coating of premanufactured railcar bodies and 2) fuel combustion. Natural gas is used to operate space heaters for the facility's paint booths and diesel is used in a small backup power generator. As a conservative approach in permitting the facility, RMEC is assuming that all VOC or HAPs contained within chemicals used at each the facility are emitted to the environment.

Site Location and Layout

Appendix B provides a plan view of the site location along with source locations and emission points.

Operation Schedules

With the exception of holidays, operations at the site are generally performed Monday through Friday, between the hours 7:00 am to 3:30 pm. Seasonal variations are not expected.

Appendix B
Site Plan Information
Stadler– Salt Lake City, Utah

SITE PLAN

The attached site plan provides details regarding the buildings, property boundaries and emission points.

Stadler Site Plan



Key

--- Approximate Property Boundary

Fig. 1 – Site Location

5880 W 150 S
Salt Lake City, Utah

Appendix C Emission Information Stadler Industries – Salt Lake City, Utah

EMISSION SOURCES

The major emission sources present at Stadler include:

- Painting and Coating (VOCs and HAPs)
- Natural Gas Combustion for Paint Booth Heating
- Diesel Combustion for Backup Generator Use and Testing

Table C-1, below, provides a summary of the estimated facility-wide emissions with an applied safety factor of 10% (shown in totals only) to account for potential increases in work activities at the Salt Lake City location.

Table C-1: Summary of Facility-Wide Emissions

Sources	Emission Type (lbs/year)						
	VOCs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	HAPs
Painting and Coatings	9,286	164	164	-	-	-	4,466
Natural Gas Combustion	100	140	140	1,820	1,540	20	40
Diesel Combustion	80	80	80	1,000	220	0	3
TOTAL (lbs/yr) (with 10% safety Factor)	10,412	422	422	3,102	1,936	22	4,960
TOTAL (TONS/yr) (with 10% safety Factor)	5.21	0.21	0.21	1.55	0.97	0.01	2.48

A detailed breakdown of the source-specific emissions from the various sources are provided in the following section.

EMISSION ESTIMATES BY SOURCE

Painting and Coatings

Stadler is in the process of installing a new paint booth at the Salt Lake City facility and all of the future painting at the facility will be performed in this paint booth. Specifications and additional information on the new paint booth is included in **Appendix H**.

Stadler will track the paint and coating consumption in the paint booths by using an Excel spreadsheet. Stadler also maintains Safety Data Sheets (SDSs) for these products. Future paint usage and the corresponding VOC and HAP emissions from this usage were calculated using the paint usage assuming 25 railcars will be coated, and then applying a correction factor to account for anticipated increases in painting activities. Paint usage estimates are attached to the end of this section. SDSs for these paints can be provided upon request.

Table C-2, below, provides an emission estimate for this source based on the projected usage:

Table C-2: Painting Emission Estimates

Air Contaminant	Emission Factor (lb./gallon)	Estimated Annual Paint Usage (pounds)	Estimated Annual Emissions (lbs.)	Estimated Annual Emissions (tons)
Volatile Organic Compounds (VOCs)	Varies with Paint	54,814	9,286	4.64
HAPs (combined)	Varies with Paint		4,446	2.23
PM ₁₀	-		164*	0.08*
PM _{2.5}	-		164*	0.08*

* PM values assume 30% solids in the paints, average specific gravity of 1.1, 20% overspray, and 95% capture efficiency for the particulate filters in the paint booth. The PM uncontrolled value is 164 lbs, or 0.08 tons.

Natural Gas Combustion

Aside from comfort heating, the Stadler Salt Lake City location uses natural gas to heat air used in their paint booths. Annual natural gas estimated usage was determined from estimates of the paint booth heaters running for 2,080 hours/year through two 1MMBtu heaters. The AP-42 Tables 1.4-1, 2, and 3 were used for the estimates.

Table C-3, below, provides an emission estimate for this source based on the projected usage:

Table C-3: Natural Gas Consumption Emission Estimates

Air Contaminant	Emission Factor (lb./10 ⁶ scf)	Estimated Annual Usage (10 ⁶ scf)	Estimated Annual Emissions (lbs.)	Estimated Annual Emissions (tons)
PM ₁₀	7.6	47	140	0.02
PM _{2.5}	7.6		140	0.02
Carbon Monoxide (CO)	84		1,540	0.77
Sulfur Dioxide (SO ₂)	0.6		20	0.01
Nitrogen Oxides NO _x	100		1,820	0.91
Volatile Organic Compounds (VOCs)	5.5		100	0.05

Diesel Combustion

The Stadler Salt Lake City location uses diesel fuel for one small generator. Annual diesel usage is determined from expected fuel use from monthly testing and running (100 hours). A safety factor of 10% was applied to this usage to estimate future usage and corresponding emissions. Emission factors were obtained from AP-42 Table 3.3.1.

Table C-4, below, provides an emission estimate for this source based on the projected usage:

Table C-4: Diesel Consumption Emission Estimates

Air Contaminant	Emission Factor (lb./MMBtu)	Estimated Annual Usage (MMBtu)	Estimated Annual Emissions (lbs.)	Estimated Annual Emissions (tons)
PM ₁₀	0.31	- 320 horsepower unit	80	0.04
PM _{2.5}	0.31		80	0.04
Carbon Monoxide (CO)	0.95		220	0.11
Sulfur Dioxide (SO ₂)	0.29		0	0
Nitrogen Oxides NO _x	4.41		1000	0.5
Volatile Organic Compounds (VOCs)	-		80	0.04

Natural Gas-Fired Boilers & Heaters

Equipment Details		
Rating	2	MMBtu/hour
Operational Hours	8,760	hours/year
Firing	Normal	

Criteria Pollutant	Concentration (ppm)	Emission Factor (lb/10 ⁶ scf)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO _x		100	0.21	0.91	Manufacturer Data or AP-42 Table 1.4-1
CO		84	0.18	0.77	
PM ₁₀		7.6	0.02	0.07	AP-42 Table 1.4-2
PM _{2.5}		7.6	0.02	0.07	
SO ₂		0.6	0.00	0.01	
VOC		5.5	0.01	0.05	
Lead		0.0005	0.00	0.00	
HAP			0.00	0.02	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/10 ⁶ scf)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO ₂ (mass basis)	1	120,000	251	1,098	AP-42 Table 1.4-2 & Table A-1 to Subpart A of Part 98
Methane (mass basis)	25	2.3	0.00	0.02	
N ₂ O (mass basis)	298	2.2	0.00	0.02	
CO ₂ e				1,104	

Hazardous Air Pollutant	Emission Factor (lb/10 ⁶ scf)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
2-Methylnaphthalene	2.40E-05	5.01E-08	2.20E-07	AP-42 Table 1.4-3
3-Methylchloranthrene	1.80E-06	3.76E-09	1.65E-08	
7,12-Dimethylbenz(a)anthracene	1.60E-05	3.34E-08	1.46E-07	
Acenaphthene	1.80E-06	3.76E-09	1.65E-08	
Acenaphthylene	1.80E-06	3.76E-09	1.65E-08	
Anthracene	2.40E-06	5.01E-09	2.20E-08	
Benz(a)anthracene	1.80E-06	3.76E-09	1.65E-08	
Benzene	2.10E-03	4.39E-06	1.92E-05	
Benzo(a)pyrene	1.20E-06	2.51E-09	1.10E-08	
Benzo(b)fluoranthene	1.80E-06	3.76E-09	1.65E-08	
Benzo(g,h,i)perylene	1.20E-06	2.51E-09	1.10E-08	
Benzo(k)fluoranthene	1.80E-06	3.76E-09	1.65E-08	
Chrysene	1.80E-06	3.76E-09	1.65E-08	
Dibenzo(a,h)anthracene	1.20E-06	2.51E-09	1.10E-08	
Dichlorobenzene	1.20E-03	2.51E-06	1.10E-05	
Fluoranthene	3.00E-06	6.26E-09	2.74E-08	
Fluorene	2.80E-06	5.85E-09	2.56E-08	
Formaldehyde	7.50E-02	1.57E-04	6.86E-04	
Hexane	1.80E+00	3.76E-03	1.65E-02	
Indeno(1,2,3-cd)pyrene	1.80E-06	3.76E-09	1.65E-08	
Naphthalene	6.10E-04	1.27E-06	5.58E-06	
Phenanathrene	1.70E-05	3.55E-08	1.55E-07	
Pyrene	5.00E-06	1.04E-08	4.57E-08	
Toluene	3.40E-03	7.10E-06	3.11E-05	
Arsenic	2.00E-04	4.18E-07	1.83E-06	AP-42 Table 1.4-4
Beryllium	1.20E-05	2.51E-08	1.10E-07	
Cadmium	1.10E-03	2.30E-06	1.01E-05	
Chromium	1.40E-03	2.92E-06	1.28E-05	
Cobalt	8.40E-05	1.75E-07	7.68E-07	
Manganese	3.80E-04	7.94E-07	3.48E-06	
Mercury	2.60E-04	5.43E-07	2.38E-06	
Nickel	2.10E-03	4.39E-06	1.92E-05	
Selenium	2.40E-05	5.01E-08	2.20E-07	

Diesel-Fired Engines

Equipment Details			
Rating	320	hp = (238.9 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	100	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO _x		0.031	9.92	0.50	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO		6.68E-03	2.14	0.11	
PM ₁₀		2.20E-03	0.70	0.04	
PM _{2.5}		2.20E-03	0.70	0.04	
VOC		2.51E-03	0.80	0.04	
SO ₂		1.21E-05	0.00	0.00	AP-42 Table 3.4-1
HAP			0.01	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO ₂ (mass basis)	1	1.15	368	18	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO ₂ e				18	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	2.09E-03	1.04E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not populate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	9.16E-04	4.58E-05	
Xylenes	2.85E-04	6.38E-04	3.19E-05	
1,3-Butadiene	3.91E-05	8.76E-05	4.38E-06	
Formaldehyde	1.18E-03	2.64E-03	1.32E-04	
Acetaldehyde	7.67E-04	1.72E-03	8.59E-05	
Acrolein	9.25E-05	2.07E-04	1.04E-05	
Naphthalene	8.48E-05	1.90E-04	9.50E-06	
Acenaphthylene	5.06E-06	1.13E-05	5.67E-07	
Acenaphthene	1.42E-06	3.18E-06	1.59E-07	
Fluorene	2.92E-05	6.54E-05	3.27E-06	
Phenanthrene	2.94E-05	6.59E-05	3.29E-06	
Anthracene	1.87E-06	4.19E-06	2.09E-07	
Fluoranthene	7.61E-06	1.70E-05	8.52E-07	
Pyrene	4.78E-06	1.07E-05	5.35E-07	
Benz(a)anthracene	1.68E-06	3.76E-06	1.88E-07	
Chrysene	3.53E-07	7.91E-07	3.95E-08	
Benzo(b)fluoranthene	9.91E-08	2.22E-07	1.11E-08	
Benzo(k)fluoranthene	1.55E-07	3.47E-07	1.74E-08	
Benzo(a)pyrene	1.88E-07	4.21E-07	2.11E-08	
Indeno(1,2,3-cd)pyrene	3.75E-07	8.40E-07	4.20E-08	
Dibenz(a,h)anthracene	5.83E-07	1.31E-06	6.53E-08	
Benzo(g,h,i)perylene	4.89E-07	1.10E-06	5.48E-08	

Estimated Paint Usage Calculations

**STADLER RAIL - VOC
EMISSIONS Estimates**

Product	ALEXIT-H/S TOPCOAT 461-5A	SEEVENAX-H/S Protective Coating 112-39	SEEVENAX Härter / Hardener 115- 39	SEEVENAX Verdünner / Thinner 903-33	PYRO-SAFE DG- SKN (RAL 7035)	SEEVENAX-H/S Primer 113-69 (RAL 3012)	SEEVENAX Härter / Hardener 115- 39
Quantity, pounds (lbs)	0.00	6878.42	858.00	422.00	10317.63	8465.75	704.00
Unit Weight, lbs/Gal	9.20	14.20	8.00	7.34	9.43	14.20	8.00
Total Weight, lbs	0.00	6,878.42	858.00	422.00	10,317.63	8,465.75	704.00
VOC Content (lbs/Gal)	3.39	1.85	0.00	7.00	0.00	2.51	0.00
Percent VOC (by weight)	36.85%	13.03%	0.00%	95.37%	0.00%	17.68%	0.00%
Emission Factor	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Weight of VOC (lbs)	0.00	896.13	0.00	402.45	0.00	1,496.41	0.00
Weight of VOC (tons)	0.00	0.45	0.00	0.20	0.00	0.75	0.00
Weight of Balance	0.00	5,982.29	858.00	19.55	10,317.63	6,969.34	704.00
HAPS							
<i>n-butyl acetate</i>							
<i>Ethylbenzene</i>	0.00	441.50		6.33		296.30	
<i>2-(2-butoxyethoxy)ethyl acetate</i>							
<i>Bismuth vanadium tetraoxide</i>							
<i>Zinc Oxide</i>						42.33	
<i>Trizinc bis(orthophosphate)</i>						634.93	
<i>Xylenes</i>	0.00	89.43		16.88		634.93	
<i>4-methylpentan-2-one</i>							
<i>Toluene</i>							
<i>Hexamethylene diisocyanate</i>							
Total HAPS (lbs)	0.00	530.93	0.00	23.21	0.00	1,608.49	0.00
Listed HAP Totals (lbs/yr)	0.00	530.93	0.00	23.21	0.00	1,608.49	0.00
Listed HAP Totals (Ton/yr)	0.00	0.27	0.00	0.01	0.00	0.80	0.00

**STADLER RAIL - VOC
EMISSIONS Estimates**

Product	SEEVENAX Verdünner / Thinner 903-33	Docofer WV- micaceous iron ore	SEEVENAX- Spachtel / Putty 134-14	SEEVENAX-Härter / Hardener 135- 38	SEEVENAX-H/S Primer 113-69 (RAL 7035)	SEEVENAX Härter / Hardener 115- 69	SEEVENAX Verdünner / Thinner 903-33	ALEXIT-H/S Colourfill 401- 6A (RAL 9006)
Quantity, pounds (lbs)	422.00	1653.47	3968.32	3968.32	3902.18	324.50	194.70	2248.72
Unit Weight, lbs/Gal	7.34	12.27	6.70	6.70	14.20	8.00	7.34	10.80
Total Weight, lbs	422.00	1,653.47	3,968.32	3,968.32	3,902.18	324.50	194.70	2,248.72
VOC Content (lbs/Gal)	7.00	0.00	0.21	0.54	2.40	0.00	7.00	3.67
Percent VOC (by weight)	95.37%	0.00%	3.13%	8.06%	16.90%	0.00%	95.37%	33.98%
Emission Factor	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Weight of VOC (lbs)	402.45	0.00	124.38	319.83	659.52	0.00	185.68	764.15
Weight of VOC (tons)	0.20	0.00	0.06	0.16	0.33	0.00	0.09	0.38
Weight of Balance	19.55	1,653.47	3,843.94	3,648.49	3,242.66	324.50	9.02	1,484.57
HAPS								
<i>n-butyl acetate</i>								449.74
<i>Ethylbenzene</i>	6.33		138.89	138.89			2.92	
<i>2-(2-butoxyethoxy)ethyl acetate</i>								11.24
<i>Bismuth vanadium tetraoxide</i>								
<i>Zinc Oxide</i>								
<i>Trizinc bis(orthophosphate)</i>								
<i>Xylenes</i>	16.88		19.84	19.84			7.79	11.24
<i>4-methylpentan-2-one</i>								
<i>Toluene</i>								
<i>Hexamethylene diisocyanate</i>								
Total HAPS (lbs)	23.21	0.00	158.73	158.73	0.00	0.00	10.71	472.23
Listed HAP Totals (lbs/yr)	23.21	0.00	158.73	158.73	0.00	0.00	10.71	472.23
Listed HAP Totals (Ton/yr)	0.01	0.00	0.08	0.08	0.00	0.00	0.01	0.24

**STADLER RAIL - VOC
EMISSIONS Estimates**

Product	ALEXIT-Härter / Hardener 405- 6B	ALEXIT Verdünner / Thinner 902-6B	ALEXIT-H/S Colourfill 401- 6A (RAL 1023)	ALEXIT-Härter / Hardener 405- 6B	ALEXIT Verdünner / Thinner 902-6B	ALEXIT-H/S Colourfill 401- 6A (RAL 5013)	ALEXIT-Härter / Hardener 405- 6B	ALEXIT Verdünner / Thinner 902-6B
Quantity, pounds (lbs)	561.00	336.60	1164.04	290.40	174.24	462.97	115.50	69.30
Unit Weight, lbs/Gal	8.76	7.76	10.80	8.76	7.76	10.80	8.76	7.76
Total Weight, lbs	561.00	336.60	1,164.04	290.40	174.24	462.97	115.50	69.30
VOC Content (lbs/Gal)	1.27	0.00	3.19	1.27	0.00	0.00	1.27	0.00
Percent VOC (by weight)	14.50%	0.00%	29.54%	14.50%	0.00%	0.00%	14.50%	0.00%
Emission Factor	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Weight of VOC (lbs)	81.33	0.00	343.82	42.10	0.00	0.00	16.74	0.00
Weight of VOC (tons)	0.04	0.00	0.17	0.02	0.00	0.00	0.01	0.00
Weight of Balance	479.67	336.60	820.22	248.30	174.24	462.97	98.76	69.30
HAPS								
<i>n-butyl acetate</i>	42.08		291.01	21.78		115.74	8.66	
<i>Ethylbenzene</i>								
<i>2-(2-butoxyethoxy)ethyl acetate</i>			5.82			2.31		
<i>Bismuth vanadium tetraoxide</i>			174.61					
<i>Zinc Oxide</i>								
<i>Trizinc bis(orthophosphate)</i>								
<i>Xylenes</i>			5.82			2.31		
<i>4-methylpentan-2-one</i>						16.20		
<i>Toluene</i>								
<i>Hexamethylene diisocyanate</i>								
Total HAPS (lbs)	42.08	0.00	477.26	21.78	0.00	136.58	8.66	0.00
Listed HAP Totals (lbs/yr)	42.08	0.00	477.26	21.78	0.00	136.58	8.66	0.00
Listed HAP Totals (Ton/yr)	0.02	0.00	0.24	0.01	0.00	0.07	0.00	0.00

**STADLER RAIL - VOC
EMISSIONS Estimates**

Product	ALEXIT-H/S Colourfill 401- 6A (RAL 9017)	ALEXIT-Härter / Hardener 405- 6B	ALEXIT Verdünner / Thinner 902-6B	ALEXIT- Clearcoat 460- 5A	ALEXIT Härter / Hardener 405- RC	ALEXIT Verdünner / Thinner 68	Estimated ANNUAL USAGE
Quantity, pounds (lbs)	1161.60	290.40	174.24	3836.04	1276.00	574.00	54814.34
Unit Weight, lbs/Gal	10.80	8.76	7.76	8.00	9.20	8.01	
Total Weight, lbs	1,161.60	290.40	174.24	3,836.04	1,276.00	574.00	54,814.34
VOC Content (lbs/Gal)	3.29	1.27	0.00	4.85	1.85	8.00	
Percent VOC (by weight)	30.46%	14.50%	0.00%	60.63%	20.11%	99.88%	
Emission Factor	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	
Weight of VOC (lbs)	353.86	42.10	0.00	2,325.60	256.59	573.28	9,286.45
Weight of VOC (tons)	0.18	0.02	0.00	1.16	0.13	0.29	4.64
Weight of Balance	807.74	248.30	174.24	1,510.44	1,019.41	0.72	45,527.89
HAPS							
<i>n-butyl acetate</i>		21.78				86.10	1,036.89
<i>Ethylbenzene</i>				134.26	6.38		1,171.80
<i>2-(2-butoxyethoxy)ethyl acetate</i>	5.81			134.26			159.45
<i>Bismuth vanadium tetraoxide</i>							174.61
<i>Zinc Oxide</i>							42.33
<i>Trizinc bis(orthophosphate)</i>							634.93
<i>Xylenes</i>	5.81			287.70	44.66		1,163.15
<i>4-methylpentan-2-one</i>	40.66						56.86
<i>Toluene</i>				19.18			19.18
<i>Hexamethylene diisocyanate</i>					6.38		6.38
<i>Total HAPS (lbs)</i>	52.27	21.78	0.00	575.41	57.42	86.10	4,465.58
Listed HAP Totals (lbs/yr)	52.27	21.78	0.00	575.41	57.42	86.10	4,465.58
Listed HAP Totals (Ton/yr)	0.03	0.01	0.00	0.29	0.03	0.04	2.23

Stadler Industries
Safety Data Sheets

Appendix D
UDAQ Form 1a
Stadler Industries – Salt Lake City, Utah

The attached **DAQ Form 1a** provides a summary of controlled and uncontrolled emissions.



**Utah Division of Air Quality
New Source Review Section**

Company Stadler Rail
 Site/Source Salt Lake City, Utah
 Date December 17, 2020

**Form 1a
Emissions Information**

Please print neatly or type all information requested. All information must be truthful, accurate and complete before we can process your application. If you have any questions, call (801) 536-4000 and ask to speak with a New Source Review engineer. Written inquiries may be addressed to: Division of Air Quality, NSR Section, P.O. Box 144820, Salt Lake City, Utah 84114-4820.

Table 1. Proposed Emissions

Pollutants	Permitted Emissions (tons/year)		Emissions Increases (tons/year)		Proposed Emissions (tons/year)	
<u>Criteria Pollutants</u>						
PM ₁₀	-		-		0.21	
PM _{2.5}	-		-		0.21	
NO _x	-		-		1.55	
SO ₂	-		-		0.01	
CO	-		-		0.97	
VOC	-		-		5.21	
<u>Greenhouse Gases</u>	<u>Mass basis</u>	<u>CO₂e</u>	<u>Mass basis</u>	<u>CO₂e</u>	<u>Mass basis</u>	<u>CO₂e</u>
Carbon dioxide (CO ₂)					1,234	
Methane (CH ₄)					-	
Nitrous oxide (N ₂ O)					-	
Hydrofluorocarbons (HFCs)					-	
Perfluorocarbons (PFCs)					-	
Sulfur hexafluoride (SF ₆)					-	
Total Hazardous Air Pollutants					2.48	
Hazardous Air Pollutants (list individually) (attach additional sheet if needed)	See attached emission calculation sheets for annual estimated HAP emissions.					
See Attached HAPs						
Use additional sheets for other pollutants if needed.						

**Utah Division of Air Quality
Approval Order Application
Form 1d
Emissions Information**

Table 2. Controlled and Uncontrolled Emissions

Pollutant	Controlled Emissions (tons/year)		Uncontrolled Emissions (tons/year)	
<u>Criteria Pollutants</u>				
PM ₁₀	0.09		0.12	
PM _{2.5}	0.09		0.12	
NO _x	-		1.55	
SO ₂	-		0.01	
CO	-		0.97	
VOC	-		5.21	
<u>Greenhouse Gases (GHGs)</u>	<u>Mass basis</u>	<u>CO₂e</u>	<u>Mass basis</u>	<u>CO₂e</u>
Carbon dioxide (CO ₂)	-		1,234	
Methane (CH ₄)	-		-	
Nitrous oxide (N ₂ O)	-		-	
Hydrofluorocarbons (HFCs)	-		-	
Perfluorocarbons (PFCs)	-		-	
Sulfur hexafluoride (SF ₆)	-		-	
Total GHG Emissions	-		-	
Total Hazardous Air Pollutants	-		-	
Hazardous Air Pollutants (list individually) (attach additional sheet if needed)	See attached emission calculation sheets for annual estimated HAP emissions. All HAP emissions are uncontrolled.			
n-butyl acetate			1,141	
Ethylbenzene			1,289	
2-(2-butoxyethoxy)ethyl acetate			175	
Bismuth vanadium tetraoxide			192	
Zinc Oxide			47	
Trizinc bis(orthophosphate)			698	
Xylenes			1,279	
4-methylpentan-2-one			63	
Toluene			21	
Hexamethylene diisocyanate			7	

Use additional sheets for other pollutants if needed

**Utah Division of Air Quality
Approval Order Application
Form 1d
Emissions Information**

Instructions

Table 1. Fill out the table. Attach additional sheets if necessary. Provide potential emissions from your entire facility in units of tons per year, expressed to at least two decimal places. Emissions of individual Hazardous Air Pollutants may require more precision; contact a New Source Review Engineer. If you do not now have an Approval Order and you are applying for your first Approval Order, the emissions in "Existing Emissions" column will be zero and the "Emissions Increases" will be equal to the "Proposed Emissions." If you do have an Approval Order, the emissions in the "Existing Emissions" column will be the emissions listed in your Approval Order. All emissions should be those emissions occurring **after** any air pollution control devices. Provide emissions that would result if you operated 24 hours per day, 8760 hours per year, **unless** you are also proposing operating hour limits. If you are proposing operating hour limits, state what these limits are and provide emissions based on these limits. Provide emissions that would result from your potential production or potential raw material consumption, **unless** you are also proposing production or raw material consumption limits. If you are proposing production or raw material consumption limits, state what these limits are and provide emissions based on these limits. **Attach additional sheets with detailed calculations or stack testing information showing how all of the above emission numbers were determined.**

There are six greenhouse gases currently regulated. USEPA has established a Global Warming Potential (GWP) for each of the six compounds: CO₂ - 1, CH₄ - 21, N₂O - 310, HFCs - 12 - 11,700, PFCs - 6,500 - 9,200, and SF₆ - 23,900. The Carbon Dioxide Equivalent (CO₂e) is determined by multiplying the mass based emission rate in tpy by the GWP. The total CO₂e for all six compounds becomes the CO₂e at the source.

Table 2. Fill out the table. Attach additional sheets if necessary. Provide potential emissions from your entire facility in units of tons per year, expressed to at least two decimal places. Emissions of individual Hazardous Air Pollutants may require more precision; contact a New Source Review Engineer. The Hazardous Air Pollutants should be the same Hazardous Air Pollutants listed in Table 1. The emissions in the "Controlled Emissions" column should be those emissions occurring **after** any air pollution control devices. The emissions in the "Uncontrolled Emissions" should be those emissions occurring **before** any air pollution control devices (in other words, emissions that would result if you did not have any air pollution control devices at all. Provide emissions that would result if you operated 24 hours per day, 8760 hours per year, **unless** you are also proposing operating hour limits. If you are proposing operating hour limits, state what these limits are and provide emissions based on these limits. Provide emissions that would result from your potential production or potential raw material consumption, **unless** you are also proposing production or raw material consumption limits. If you are proposing production or raw material consumption limits, state what these limits are and provide emissions based on these limits. **Attach additional sheets with detailed calculations or stack testing information showing how all of the above emission numbers were determined.**

For GHG emission calculations, refer to the instructions to Table 1.

Table 3. List all Hazardous Air Pollutants emitted by your facility. They should be the same Hazardous Air Pollutants listed in tables 1 and 2. For each HAP provide its maximum emission rate in units of pounds per hour. The emission rates should be those rates occurring **after** any air pollution control devices. **Attach additional sheets with detailed calculations or stack testing information showing how all of the above emission numbers were determined.**

Depending on other conditions unique to each facility, additional emissions information may be required.

Appendix E
Source Size Determination
Stadler Industries – Salt Lake City, Utah

Table E-1, below, summarizes the facility-wide emissions from the Stadler Industries Salt Lake City Location:

Table E-1: Summary of Facility-Wide Emissions

Sources	Emission Type						
	VOCs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	HAPs
TOTAL (lbs/yr)	10,412	422	422	3,102	1,936	22	4,960
TOTAL (TONS/yr)	5.21	0.21	0.21	1.55	0.97	0.01	2.48

Based on the summary of emissions in **Table E-1**, the Stadler facility is a minor source.

Appendix F
Offset Requirements
Stadler Industries – Salt Lake City, Utah

Table F-1, below, summarizes the facility-wide emissions from the Stadler Industries Salt Lake City Location:

Table F-1: Summary of Facility-Wide Emissions

Sources	Emission Type						
	VOCs	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	HAPs
TOTAL (lbs/yr)	10,412	422	422	3,102	1,936	22	4,960
TOTAL (TONS/yr)	5.21	0.21	0.21	1.55	0.97	0.01	2.48

The PTE VOC emissions for the Stadler Salt Lake City location is 5.21 TPY and less than the threshold of 50 TPY. **No VOC offsets are required.**

The combined emissions of SO₂, NO_x, and PM₁₀ from the Stadler Salt Lake City location will be **6.98 TPY**. This is less than the 25 TPY threshold requiring PM₁₀ offsets. **No PM₁₀ offsets are required.**

Appendix G
BACT Analysis
Stadler Industries – Salt Lake City, Utah

Emissions from Stadler Industries include Hazardous Air Pollutants (HAPs), and criteria pollutants: particulates (PM₁₀ & PM_{2.5}), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO₂), and nitrogen oxides (NO_x). Table G-1 provides a summary of the emissions, their source and the existing control methods for the pollutants.

Table G-1: Emission Source and Control Method Summary

Sources	Location	Emission Type	Control Methods
Painting and Coating	New Paint Booths Main Shop	Particulates	Particulate Filters in Paint Booths
		VOCs and HAPs	None
Natural Gas and Diesel Usage	Natural gas for heating; and diesel for generator	Criteria Pollutants	None

CURRENT EXISTING PARTICULATE CONTROL TECHNOLOGIES

The site is located in Salt Lake County, Utah, and is within a non-attainment and maintenance area.

Paint Booths

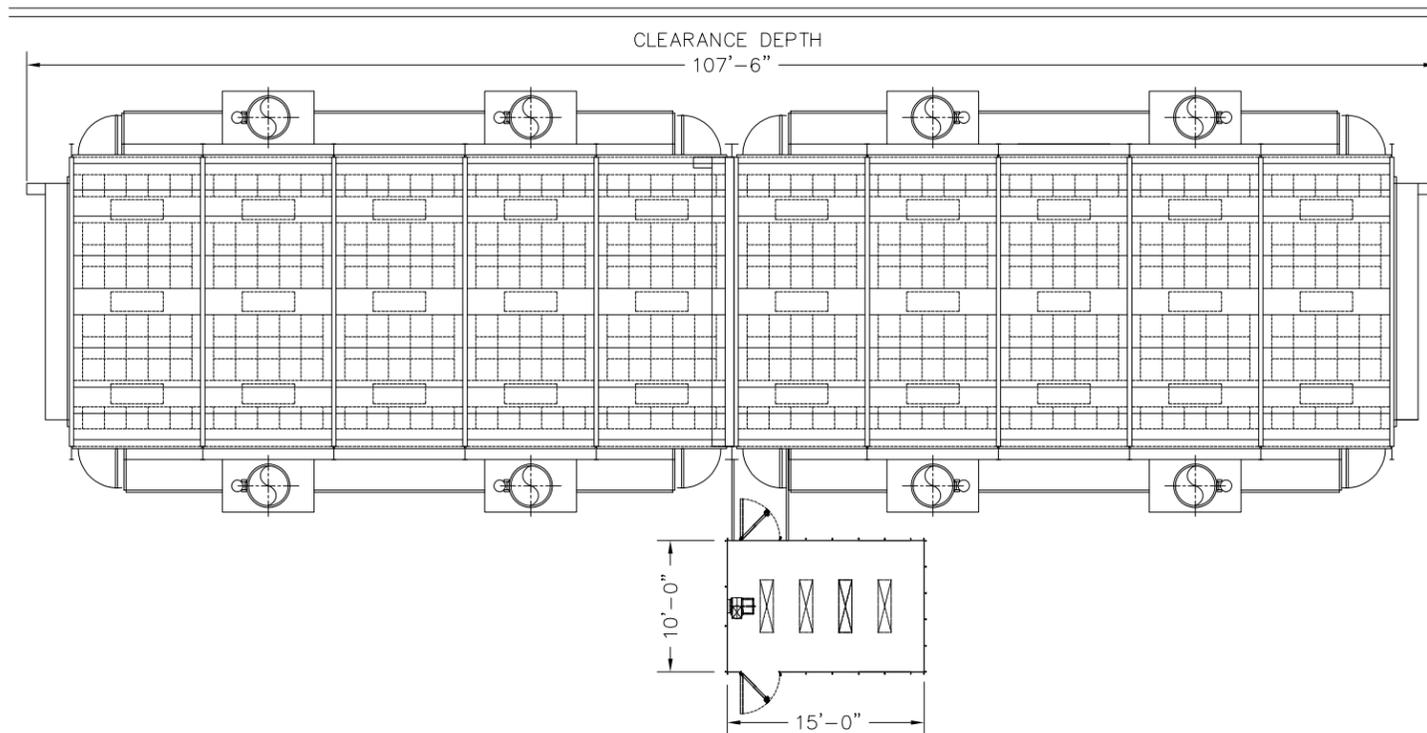
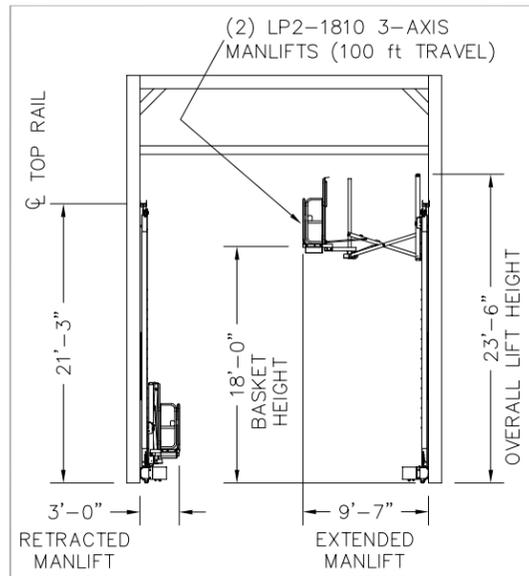
Stadler is in the process of installing a new paint booth in the Main Shop building. Specifications for the paint booth are contained in **Appendix H**. Particulate filters for the paint booth will be located along the east wall of the booth and will remove 95% of paint particulate overspray. Specifications for this paint booth are also contained in **Appendix H**.

Appendix H
Equipment Controls Information
Stadler Industries – Salt Lake City, Utah

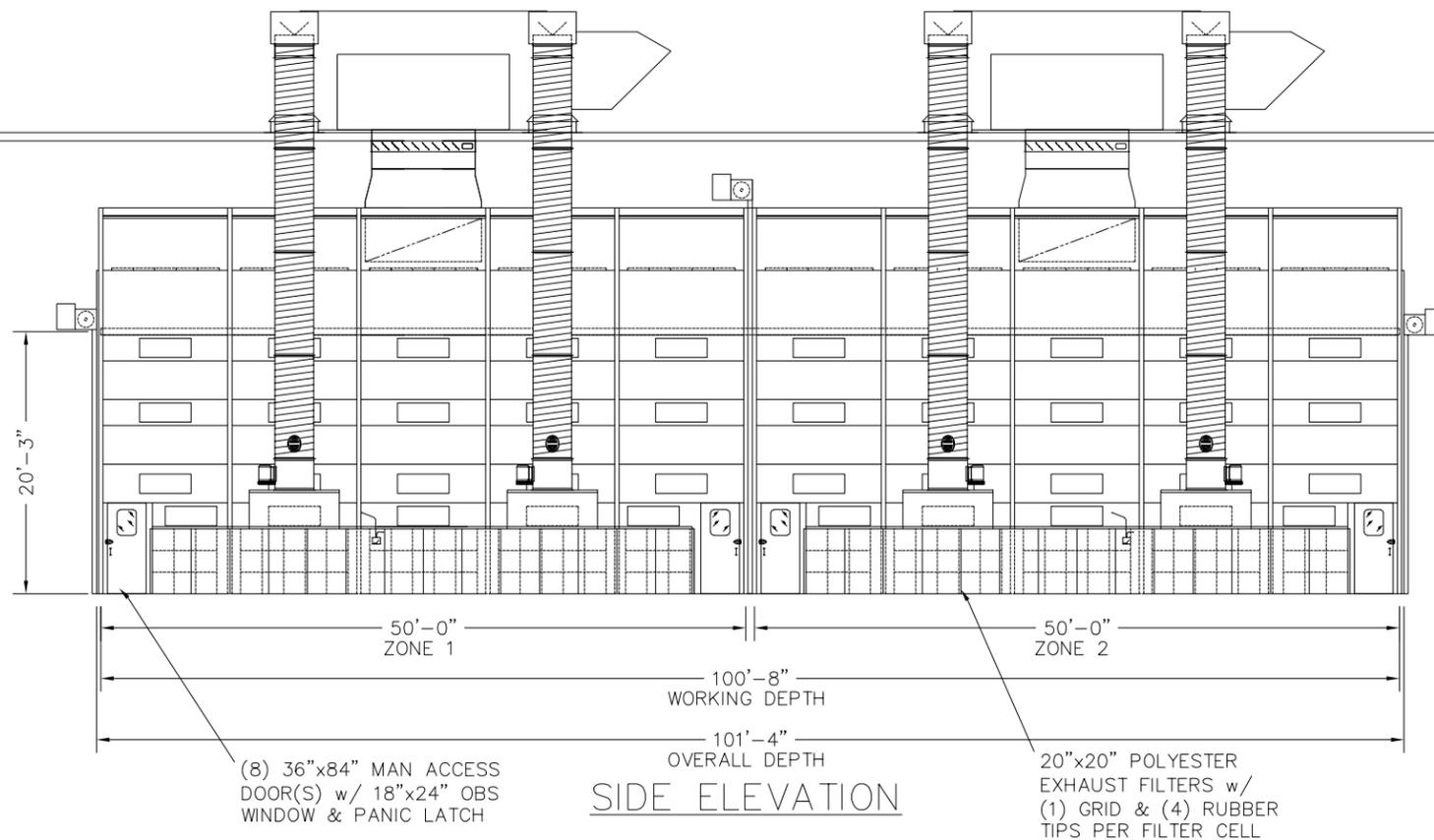
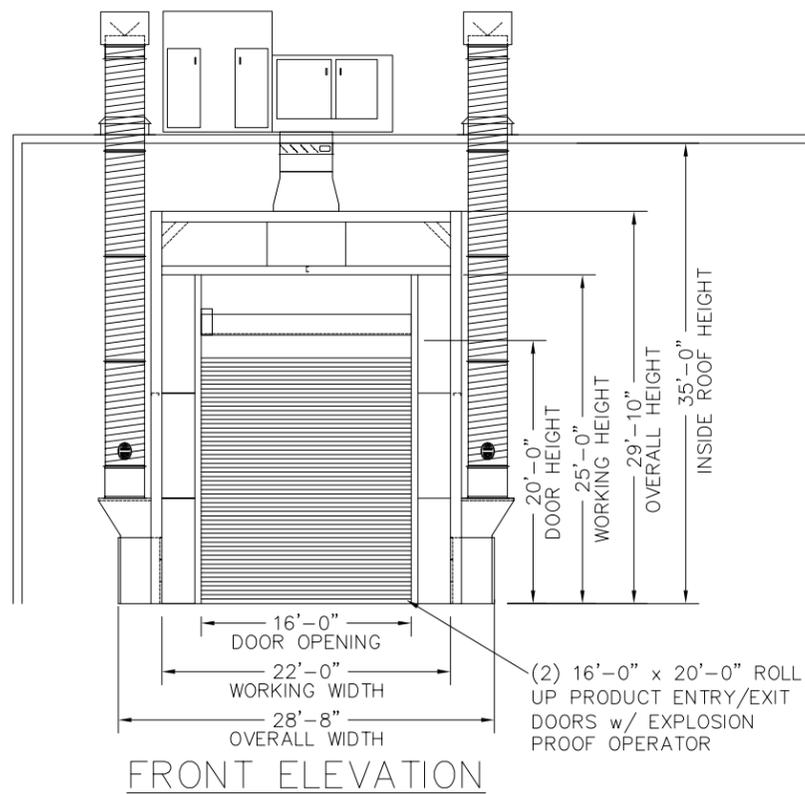
Information for the following equipment controls are attached to this appendix:

- Large Spray Booth in the Main Shop

Main Shop Large Spray Booths Drawings



PLAN VIEW



MECHANICAL TOLERANCES

XXX	±.005
.XXX	±.005
XX	±.05
XX	±.05
FRACTIONAL ±1/64	
ANGULAR ±1°	
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED	

NO.	DATE	BY	REVISION

TITLE:

STADLER RAIL
SALT LAKE CITY, UT
100% FRESH AIR SPRAY BOOTH
SYSTEM LAYOUT

DRAWN BY: JWD	DATE: 6/19/19	CHECK BY:	SCALE: N/A
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SYSTEM PROPOSAL

UT18-014

To: Stadler US, Inc.
Mr. Stefan Huber
900 N. 500 W.
Salt Lake City, UT 84116

Date: July 17, 2019
Proposal is valid for thirty
days from above date

Note: The above proposal number should appear on any subsequent purchase order issued to CCIS.
This proposal supersedes all previous proposals for this system.

Mr. Huber,

In accordance with your request, CCIS is pleased to submit the following proposal for your consideration.

I. Proposal

A. Scope

Stadler US, Inc. (Buyer) desires to purchase a spray booth for installation at the facility in Salt Lake City, UT. The scope will include the following:

Base Bid – 100% Fresh Air Spray-Cure Paint Booth & Paint Mix Room

Hardware: One (1) Spray Booth, Side-Downdraft, 22'W x 25'H x 100'D
Temperature Control Only (No Humidity Control)
Spray-Cure Capable
Two (2) 50'D Zones
100% Fresh Air Supply
Two (2) 3-Axis Man Lifts, Pneumatic
One (1) Paint Mix Rooms, 10'W x 8'H x 15'D

Services: One (1) Lot System Engineering
One (1) Lot Installation Supervision
One (1) Lot Mechanical and Electrical Installation

Option 1 – 80/20 Spray-Cure Paint Booth & Paint Mix Room

Hardware: One (1) Spray Booth, Side-Downdraft, 22'W x 25'H x 100'D
Temperature Control Only (No Humidity Control)
Spray-Cure Capable
Two (2) 50'D Zones
80/20 Recirculating Air Supply
Two (2) 3-Axis Man Lifts, Pneumatic
One (1) Paint Mix Rooms, 10'W x 8'H x 15'D

Services: One (1) Lot System Engineering
One (1) Lot Installation Supervision
One (1) Lot Mechanical and Electrical Installation

B. Bid Description

In partial fulfillment of the above scope CCIS (Seller) desires to provide the following hardware and services:

Base Bid – 100% Fresh Air Spray-Cure Paint Booth, 2 Zone

The Base Bid of this proposal includes one (1) 100'D spray-cure paint booth with 100% fresh air side-downdraft airflow. The booth will be divided into two (2) 50'D zones capable of operating independently.

Booth Operation

Clean air is input into the booth through a ceiling type intake plenum located at the top of the booth enclosure, and is exhausted through filter chambers located on both sides of the enclosure that run along the depth of the booth. Air is pulled vertically downward from the ceiling of the booth to the floor at an average velocity of approximately 50 fpm. This booth is designed to give you the benefits of a downdraft booth without having the expense of putting in a floor pit. The intake and exhaust filter layout is designed for even air velocity throughout the working area of the booth (Consistent air velocity is an important factor in achieving a quality paint job). The intake plenum is designed with high efficiency intake filters to remove dust and dirt before it enters the paint booth. This will provide a cleaner environment for a quality paint job. By pressurizing the booth, you will achieve a cleaner paint job because the air entering the booth will be ducted directly from the intake air source (Heated AMU or Intake Fan) into the booth intake plenum, bypassing potentially contaminated shop air. The booth is designed with the maximized filter quantity to assure efficient particulate filtration from the intake and exhaust filters.

Subject Model

Zone 1 Working Dimensions: 22'0" Wide x 25'0" High x 50'0" Deep
Zone 2 Working Dimensions: 22'0" Wide x 25'0" High x 50'0" Deep
Approx. Overall Dimensions: 28'8" Wide x 29'10" High x 101'4" Deep
(Overall dimensions' subject to change at time of approval drawing)

Construction

Booth panels consist of 18-gauge galvanized steel sheets. The panels are pre-punched and companion flanged for easy assembly.

Booth support structure consists of structural steel "I" beam with trouble-free bolt together assembly to support 3-Axis manlifts.

Note: This equipment is designed expressly for the removal of particulate matter only. Reduction of "volatile organic compounds" requires either coating reformulation or optional, additional equipment.

Booth to Include the Following:

Exhaust System

8 ea. 36" Tube axial in-line exhaust fan (13,750 CFM each x 8 = 110,000 Total CFM @ ¾" s.p.)

Tube axial fans feature a continuously welded housing for an airtight seal. The propellers are non-sparking cast aluminum for consistent air velocity at higher static pressures. The universal motor plates will allow adjustable belt tensioning. The bearings are of premium air handling quality, self-aligning, and have an L₁₀ life of 40,000 hours. The belt guard provides protection from the rotating pulley (OSHA Requirement). Fan has been designed per AMCA 210 Standards.

8 ea. 5 h.p. tri-voltage 208/230/460 volts, 3 phase, 60 hz TEFC high efficiency motor with variable pitch drive sheave.

Motors feature a heavy gauge steel frame, double sealed ball bearings that are mechanically locked on the shaft end, and bolt on motor base for easy removal. The service factors for the motor are 1.15 for 3-phase power and 1.0 on 1-phase power. UL recognized and CSA certified.

Lighting

110 ea. LED light fixtures, inside access 48" 6-tube, dual voltage-120/277 with 85% color corrected tubes included.

Lights are Class I, Division 2 rated. Lights are ETL & ETL-C listed and are also listed for locations having deposits of readily combustible paint residue. Instant start (starting temperature at 0 degrees F.) T-8 electronic ballast provides greater energy savings. The lamp holders are twist in style. The lights feature front/inside access for easy lamp replacement and are equipped with an interlock switch to disable painting operations when light access door is opened.

Product Entry Door

1 ea. Motorized, 18 Gauge coil type product door (16' Wide x 20' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Center Divider Door

1 ea. Motorized, 18 Gauge coil type product door (22' Wide x 25' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Product Exit Door

1 ea. Motorized, 18 Gauge coil type product door (16' Wide x 20' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Personnel Door

8 ea. Personnel access doors with panic latch (3'0"W x 7'0"H) with 18" x 24" clear tempered glass observation window

Exhaust Chamber

4 ea. Side exhaust filter chambers with 20" x 20" x 2" filter cells and fan to chamber transition
1 set 20" x 20" x 2" Polyester Exhaust filters and 1 set of wire grids & tips

Intake Chamber

1 ea. Ceiling type intake filter chamber 3' high with 20" x 20" x 2" filter cells
1 set 20" x 20" x 1" Tackified Intake filters with internal wire grids

Vestibule

1 ea. Vestibule to connect mix room to booth

Control Panel

1 ea. Booths with cure options come standard with an "INSIGHT" control panel (480v. 3ph. 3 wire). The "INSIGHT" control system is an automated control system. The INSIGHT control panel comes standard with the following components.

- Type 12 industrial panel with main disconnect, and door mounted disconnect handle.
- Motor starters or variable frequency drives (VFD's) with branch circuit, and overload protection per NEC Article 430
- Control Transformer with primary/secondary fusing.
- Lighting branch circuits and contactor.

- Control power supply 120vac/24vdc
- Air Flow Switches and interlocks.
- Terminal Strip and Wire Gutters for easy connection of field wiring
- Programmable Logic Controller (PLC)
- Operator Interface Screen (HMI) Standard 5.7" Monochrome.
- Complete control panel is UL 508A listed.

The major feature of the INSIGHT control panel is the PLC based control and a touch screen. The control system continuously monitors all systems for safety, and function. The simplistic setup and operating screens, along with built in help screens provide the operator the current process of the oven. Pop up displays will display running information and faults. The INSIGHT assures that the ventilation system operates safely in a Spray mode with required interlocks required by NFPA 33 National Standard for Spray Application Using Flammable or Combustible Materials. The INSIGHT also assures that the ventilation system operates safely in a Cure mode with the interlocks and purging required by NFPA 86 National Standard for Ovens and Furnaces.

- Standard Features of INSIGHT are:
 - Easy pop-up screens for setting temperatures, and batch cycle times.
 - Digital display of Set Point Temperature, and Current process temperature
 - Digital display of Batch Set Time, and Time Remaining.
 - Intuitive pop-up screens of current changing operations, and faults.
 - AMU VFD's
 - Controls each zone independently or all as one booth

Paint Curing System

2 ea. Paint Curing System with Variable Air Volume

The air replacement unit is designed with a variable frequency drive to discharge 160 degree F air for accelerated curing cycle. This design reduces airflow 50% during the curing mode. This system always uses outside air during the cure mode to ensure clean air for the cure cycle.

Air Balancing System

1 ea. Auto-Balance System (Model # AB5-8)

Designed to automatically keep the paint booth balanced when in operation. It is recommended by CCIS on all pressurized booths. This system consists of a variable frequency drive that controls the exhaust fan motor, differential pressure gauge and sensing probes. The system monitors the interior booth pressure and will adjust the exhaust fan RPM's to what is needed for the volume of exhaust air based on what the incoming intake air is. The result is a booth that is balanced automatically and will stay in balance as the filters load up with paint over spray. System will increase useful filter life, provide a constant airflow through the booth and the ability to control booth pressure.

Air Replacement System

2 ea. 55,000 CFM Direct Fired Gas Heated Outdoor Roof Mounted Air Make-up Unit to replace the exhaust air from the paint spray booth. Air Make-up Unit features 100% fuel efficiency for reduced energy consumption.

Design Specifications (Based on ASHRAE Data from Salt Lake City)
 Temperature: 70°F (+/- 10°F) Paint mode only
 Humidity: No control

Each Unit to Include:

CFM: 55,000 CFM each – 110,000 CFM Total
 ESP: .5
 Temperature Rise (F°): 100

BTU/Hr: Min. 242,000 Max. 6,050,000
Heat Medium: Direct Fired NG: 2# - 5#
Cool Medium: Evaporative Cooling
Function: Air Make Up Unit – Outdoor, Roof Mounted
Voltage: 480v, 3 Ph, 60hz Motor HP: 40 Unit FLA: 53
Heating Temp. Control: GFS PLC Temp. Control

AMU to Include:

- Outside Air Filter Section*
Type: 2 in. Pleated
- Discharge Damper & Actuator*
- Roof curb
- 2" Construction
- **Evaporative Cooler (Built in Unit)**
- Fill/Drain Valves
- Fan: FC DWDI
- Roof Curb
- Intake Hood
- Insulated Unit
- Single Point Power Connection
- Unit Disconnect
- Motor Circuit Protection
- Interrupted Ignition
- HOT package
- ETL Label
- **Approx. weight: 16,000 Lbs. each**
- **Approx. footprint: 20'0" W x 9'2" H x 18'0" L**

Air Replacement Ductwork

1 lot Air make-up unit ductwork for a 35 ft. high roof to include:

Discharge Ductwork

- 1 lot Straight duct
- 4 ea. 90° Vertical elbow
- 2 ea. Tee sections

Exhaust Ductwork

1 lot 36" dia. Exhaust ductwork for a 6 ft. minimum termination height above a 35 ft. high roof to include:

- 1 lot Spiral straight duct with inspection door and connecting rings
- 2 ea. Automatic roof ventilator with connecting rings
- 2 ea. Curb caps (Curbs by others)

Operational and Safety Equipment

- 2 ea. 3/4" 3-way solenoid valve to prevent spraying in booth when fans are off or light tube access door is opened (NFPA-33 requirement)
- 11 ea. Limit Switches (Proximity switch) to shut down painting when booth doors are opened (Time delay is standard on man access doors)
- 4 ea. Dwyer Mark II Manometer (Required per NFPA-33 Fire Code to monitor paint over spray build up on exhaust filters)

Assembly Hardware

- 1 lot Necessary assembly hardware including all required bolts, nuts, & caulking for a complete mechanical assembly.

Option 1 – 80/20 Spray-Cure Paint Booth, 2 Zone

The Option 1 of this proposal will replace the 100% fresh air supply booth of the Base Bid with an 80/20 recirculating air booth. The higher equipment cost will be offset by lower running costs. All functionality is the same between the two (2) spray booths.

Booth Operation

Clean air is recirculated into the booth through a ceiling type intake plenum located at the top of the booth enclosure, and is exhausted through filter chambers located on both sides of the enclosure that run along the depth of the booth. Air is pulled vertically downward from the ceiling of the booth to the floor at an average velocity of approximately 50 fpm. This booth is designed to give you the benefits of a downdraft booth without having the expense of putting in a floor pit. The intake and exhaust filter layout is designed for even air velocity throughout the working area of the booth (Consistent air velocity is an important factor in achieving a quality paint job). The intake plenum is designed with high efficiency intake filters to remove dust and dirt before it enters the paint booth. This will provide a cleaner environment for a quality paint job. By pressurizing the booth, you will achieve a cleaner paint job because the air entering the booth will be ducted directly from the intake air source (Heated AMU or Intake Fan) into the booth intake plenum, bypassing potentially contaminated shop air. The booth is designed with the maximized filter quantity to assure efficient particulate filtration from the intake and exhaust filters.

Subject Model

Zone 1 Working Dimensions: 22'0" Wide x 25'0" High x 50'0" Deep
Zone 2 Working Dimensions: 22'0" Wide x 25'0" High x 50'0" Deep
Approx. Overall Dimensions: 28'8" Wide x 29'10" High x 101'4" Deep
(Overall dimensions' subject to change at time of approval drawing)

Construction

Booth panels consist of 18-gauge galvanized steel sheets. The panels are pre-punched and companion flanged for easy assembly.

Booth support structure consists of structural steel "I" beam with trouble-free bolt together assembly to support 3-Axis manlifts.

Note: This equipment is designed expressly for the removal of particulate matter only. Reduction of "volatile organic compounds" requires either coating reformulation or optional, additional equipment.

Booth to Include the Following:

Exhaust System

2 ea. AMX 270 36" Mixed-Flow in-line exhaust fans (12,100 CFM each x 2 = 24,200 Total CFM @ 3" s.p.)

Mixed flow fans are designed for maximum performance at higher static pressures and higher air volumes. Model AMX fans use a mixed flow wheel for quiet operation with high efficiencies in low to medium pressure ducted systems. The housing shall be constructed of continuously welded heavy gauge steel to assure no air leakage. The housing and bearing support shall be constructed of structural steel members to prevent vibration and rigidly support the shaft and bearings. Welded steel vanes shall straighten the flow of air from the fan discharge and support bearings and drives. Spun aluminum inlet cone provides spark type "C" type construction. Motor supports are heavy gauge steel and are welded to the fan housing. The motor plates with jack screws provide belt tensioning adjustment. Turned, precision ground and polished steel shafts shall be sized so the first critical speed is at least 25% over the maximum operating speed for each pressure class. Close tolerances shall be maintained where the shaft makes contact with the bearing. Bearings shall be heavy duty, grease lubricated, self-aligning ball or roller flange mounted bearings with extended lubrication lines.

Bearings shall be selected for a minimum life (L-10) of 80,000 hours at maximum operating speed and horsepower for each construction level. The fan is also equipped with extended lube lines with grease fittings. This will allow lubrication without disassembling the fan. The belt guards provide protection from rotating drive components (OSHA Requirement). All sound levels are calculated per AMCA publication 201.

- 2 ea. 15 h.p. tri-voltage 208/230/460 volts, 3 phase, 60 hz TEFC high efficiency motors with variable pitch drive sheave.

Motors feature a heavy gauge steel frame, double sealed ball bearings that are mechanically locked on the shaft end, and bolt on motor base for easy removal. The service factors for the motor are 1.15 for 3-phase power and 1.0 on 1-phase power. UL recognized and CSA certified

Recirculation System

- 8 ea. AMX 270 36" Mixed-Flow in-line exhaust fans (12,100 CFM each x 8 = 96,800 Total CFM @ 3" s.p.)

Mixed flow fans are designed for maximum performance at higher static pressures and higher air volumes. Model AMX fans use a mixed flow wheel for quiet operation with high efficiencies in low to medium pressure ducted systems. The housing shall be constructed of continuously welded heavy gauge steel to assure no air leakage. The housing and bearing support shall be constructed of structural steel members to prevent vibration and rigidly support the shaft and bearings. Welded steel vanes shall straighten the flow of air from the fan discharge and support bearings and drives. Spun aluminum inlet cone provides spark type "C" type construction. Motor supports are heavy gauge steel and are welded to the fan housing. The motor plates with jack screws provide belt tensioning adjustment. Turned, precision ground and polished steel shafts shall be sized so the first critical speed is at least 25% over the maximum operating speed for each pressure class. Close tolerances shall be maintained where the shaft makes contact with the bearing. Bearings shall be heavy duty, grease lubricated, self-aligning ball or roller flange mounted bearings with extended lubrication lines. Bearings shall be selected for a minimum life (L-10) of 80,000 hours at maximum operating speed and horsepower for each construction level. The fan is also equipped with extended lube lines with grease fittings. This will allow lubrication without disassembling the fan. The belt guards provide protection from rotating drive components (OSHA Requirement). All sound levels are calculated per AMCA publication 201.

- 8 ea. 15 h.p. tri-voltage 208/230/460 volts, 3 phase, 60 hz TEFC high efficiency motors with variable pitch drive sheave.

Motors feature a heavy gauge steel frame, double sealed ball bearings that are mechanically locked on the shaft end, and bolt on motor base for easy removal. The service factors for the motor are 1.15 for 3-phase power and 1.0 on 1-phase power. UL recognized and CSA certified

Lighting

- 110 ea. LED light fixtures, inside access 48" 6-tube, dual voltage-120/277 with 85% color corrected tubes included.

Lights are Class I, Division 2 rated. Lights are ETL & ETL-C listed and are also listed for locations having deposits of readily combustible paint residue. Instant start (starting temperature at 0 degrees F.) T-8 electronic ballast provides greater energy savings. The lamp holders are twist in style. The lights feature front/inside access for easy lamp replacement and are equipped with an interlock switch to disable painting operations when light access door is opened.

Product Entry Door

- 1 ea. Motorized, 18 Gauge coil type product door (16' Wide x 20' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Center Divider Door

- 1 ea. Motorized, 18 Gauge coil type product door (22' Wide x 25' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Product Exit Door

- 1 ea. Motorized, 18 Gauge coil type product door (16' Wide x 20' High) with intrinsically safe control circuits, explosion proof motor, explosion proof control panel, (2) push button stations and a safety sensing edge. Door Speed is approximately 6" per second. Door color is Gray.

Personnel Door

- 8 ea. Personnel access doors with panic latch (3'0"W x 7'0"H) with 18" x 24" clear tempered glass observation window

Exhaust Chamber

- 4 ea. Side exhaust filter chambers with 20" x 20" x 4" filter cells and fan to chamber transition
1 lot 3-Stage Filter System

Our 3-stage filter system is designed for particulate removal. Our system consists of the following filters:

- First stage is a roll media type of filter.
- Second stage is a panel type filter.
- Third stage is a bag type filter.

Intake Chamber

- 1 ea. Ceiling type intake filter chamber 3' high with 20" x 20" x 2" filter cells
1 set 20" x 20" x 1" Tackified Intake filters with internal wire grids

Vestibule

- 1 ea. Vestibule to connect mix room to booth

Control Panel

- 1 ea. Booths with cure options come standard with an "INSIGHT" control panel (480v. 3ph. 3 wire). The "INSIGHT" control system is an automated control system. The INSIGHT control panel comes standard with the following components.

- Type 12 industrial panel with main disconnect, and door mounted disconnect handle.
- Motor starters or variable frequency drives (VFD's) with branch circuit, and overload protection per NEC Article 430
- Control Transformer with primary/secondary fusing.
- Lighting branch circuits and contactor.
- Control power supply 120vac/24vdc
- Air Flow Switches and interlocks.
- Terminal Strip and Wire Gutters for easy connection of field wiring
- Programmable Logic Controller (PLC)
- Operator Interface Screen (HMI) Standard 5.7" Monochrome.
- Complete control panel is UL 508A listed.

The major feature of the INSIGHT control panel is the PLC based control and a touch screen. The control system continuously monitors all systems for safety, and function. The simplistic setup and operating screens, along with built in help screens provide the operator the current process of the oven. Pop up displays will display running information and faults. The INSIGHT assures that the ventilation system operates safely in a Spray mode with required interlocks required by NFPA 33 National Standard for Spray Application Using Flammable or Combustible Materials. The INSIGHT also assures that the ventilation

system operates safely in a Cure mode with the interlocks and purging required by NFPA 86 National Standard for Ovens and Furnaces.

- Standard Features of INSIGHT are:
 - Easy pop-up screens for setting temperatures, and batch cycle times.
 - Digital display of Set Point Temperature, and Current process temperature
 - Digital display of Batch Set Time, and Time Remaining.
 - Intuitive pop-up screens of current changing operations, and faults.
 - AMU VFD's
 - Controls each zone independently or all as one booth

Paint Curing System

2 ea. Paint Curing System with Variable Air Volume

The air replacement unit is designed with a variable frequency drive to discharge 160 degree F air for accelerated curing cycle. This design reduces airflow 50% during the curing mode. This system always uses outside air during the cure mode to ensure clean air for the cure cycle.

Air Balancing System

2 ea. Auto-Balance System (Model # AB15-1)

Designed to automatically keep the paint booth balanced when in operation. It is recommended by CCIS on all pressurized booths. This system consists of a variable frequency drive that controls the exhaust fan motor, differential pressure gauge and sensing probes. The system monitors the interior booth pressure and will adjust the exhaust fan RPM's to what is needed for the volume of exhaust air based on what the incoming intake air is. The result is a booth that is balanced automatically and will stay in balance as the filters load up with paint over spray. System will increase useful filter life, provide a constant airflow through the booth and the ability to control booth pressure.

2 ea. Auto-Balance System (Model # AB15-4)

Designed to automatically keep the paint booth balanced when in operation. It is recommended by CCIS on all pressurized booths. This system consists of a variable frequency drive that controls the exhaust fan motor, differential pressure gauge and sensing probes. The system monitors the interior booth pressure and will adjust the exhaust fan RPM's to what is needed for the volume of exhaust air based on what the incoming intake air is. The result is a booth that is balanced automatically and will stay in balance as the filters load up with paint over spray. System will increase useful filter life, provide a constant airflow through the booth and the ability to control booth pressure.

Air Replacement System

2 ea. 12,100 CFM Direct Fired Gas Heated Outdoor Roof Mounted Air Make-up Unit to replace the exhaust air from the paint spray booth. Air Make-up Unit features 100% fuel efficiency for reduced energy consumption.

Design Specifications (Based on ASHRAE Data from Salt Lake City)

Temperature: 70°F (+/- 10°F)

Humidity: No control

Each Unit to Include:

CFM: 12,100 CFM each – 24,200 CFM Total

ESP: 1"

Temperature Rise (F°): 80

BTU/Hr: Min. 42,592 Max. 1,064,800

Heat Medium: Direct Fired NG: 2# - 5#

Cool Medium: **Evaporative Cooling**

Function: Air Make Up Unit – Outdoor, Roof Mounted
Voltage: 480v, 3 Ph, 60hz Motor HP: 15 Unit FLA: 22
Heating Temp. Control: GFS PLC Temp. Control

AMU to Include:

- Outside Air Filter Section*
Type: 2 in. Pleated
- Discharge Damper & Actuator*
- Roof curb
- 2" Construction
- Evaporative Cooler (Built in Unit)
- Fill/Drain Valves
- Plenum Blower
- Roof Curb
- Intake Hood
- Insulated Unit
- Single Point Power Connection
- Unit Disconnect
- Motor Circuit Protection
- Interrupted Ignition
- HOT package
- ETL Label
- **Approx. weight: 11,000 Lbs. each**
- **Approx. footprint: 6'0" W x 6'0" H x 15'0" L**

Air Replacement Ductwork

1 lot Air make-up unit ductwork for a 35 ft. high roof to include:

Discharge Ductwork

- 1 lot Straight duct
- 4 ea. 90° Vertical elbow
- 2 ea. Tee sections

Exhaust Ductwork

1 lot 36" dia. Exhaust ductwork for a 6 ft. minimum termination height above a 35 ft. high roof to include:

- 1 lot Spiral straight duct with inspection door and connecting rings
- 2 ea. Automatic roof ventilator with connecting rings
- 2 ea. Curb caps (Curbs by others)

Recirculation Ductwork

1 lot 36" dia. Exhaust ductwork to include:

- 1 lot Spiral straight duct with inspection door and connecting rings
- 8 ea. 90° elbows with connecting rings
- 4 ea. Electric duct heaters (To be used during cure cycle)
- 8 ea. Booth transition ducts

Operational and Safety Equipment

- 2 ea. 3/4" 3-way solenoid valve to prevent spraying in booth when fans are off or light tube access door is opened (NFPA-33 requirement)
- 11 ea. Limit Switches (Proximity switch) to shut down painting when booth doors are opened (Time delay is standard on man access doors)
- 4 ea. 3-Stage Filter Monitoring System
Magnehelic gauges monitor the pressure differentials across each filter stage.

Assembly Hardware

1 lot Necessary assembly hardware including all required bolts, nuts, & caulking for a complete mechanical assembly.

Base Bid – Two (2) 3-Axis Man Lifts

Two (2) Model LP2-1810 3-Axis Pneumatic Personnel Lifts per Spray Booth

****2” gap in the middle of the booth for roll-up door to slide through****

Each to include:

Operation / Specifications:

- "Lowered platform height 25" (635mm) (from top of lower rail to operator platform).
- "Raised platform height 18' (5486mm) (from top of lower rail to operator platform)
- "Centerline of upper rail at 21'-3" (6477mm) (from top of lower rail)
- "Overall raised lift height 23'-6" (7163mm) (from top of lower rail to highest point on operator platform)
- "Retracted depth of lift 3' (914mm) (from booth wall to front of operator platform)
- "Fully extended reach 9'-7" (2921mm) (from booth wall to front of operator platform)
- "Operator controls located on front rail of operator platform, Y & Z-axis hand controls with emergency down and emergency stop, and X-axis foot control.
- "Operator platform size 48" x 21" (2119mm x 533mm) (operator platform 58" wide with entry steps attached)
- "Lift base 48" (1219mm) wide
- "Operator platform to have 42" (1067mm) high guardrails with 4" (102mm) toe boards
- "Platform entry gates, on left and right sides of platform are self-closing and self-latching
- "Platform capacity, 500# (227 Kg) maximum

Safety:

- "Spring applied, air released brake on Z-axis to prevent descent when lift is not in operation
- "Emergency down in operator platform activates air reservoir to release Z-axis brake allowing lift to descend
- "Z-axis safety system to secure lift platform to mast if loss of screw tension is detected.
- "Base control to raise and lower operator platform
- "Main air shutoff / Lockout at base of lift.
- "Safety harness attachment points in operator platform.

Features:

- "Auto greaser on ball nut
- "Operator platform deck , steel safety plate
- "3/8" NPT auxiliary air supply connection in operator platform .
- "Unit equipped with filter/regulator/lubricator.
- "Main air connection located at top of mast (left or right hand connection)

Lift travel speeds:

- "X axis speed variable up to 40 FPM (12 MPM)
- "Z axis speed 15 FPM (4.5 MPM)
- "Y axis speed 15 FPM (4.5 MPM)

Lift requires a clean dry air supply of 80 SCFM @ 100 PSI with a 40oF dew point. Customer to supply plumbing to CCIS's designated main air supply connection

Model LP2-11021-IK Installation Kit for LP2 Pneumatic Personnel Lift

****2” gap in the middle of the booth for roll-up door to slide through****

Each to include:

"100' of upper rail 150mm beam (W6x15#Beam).

"100' of lower rail 50mm square tube (2x2x1/4"Tube) with end rail stops and concrete anchors

"100' of 1" main air hose assembly with hose grip and fittings to attach to lift and main air supply connection

"(5) roller trolleys capable of carrying main air supply hose and up to two additional 3/4" hoses (by others) for breathing air and auxiliary process air. (each festooning carrier will take up approximately 9" on the upper rail, which decreases the lift travel by the total number of carriers times 9")

"Side Draft Mast Cover - Deflector cover that mounts to the back of the lift mast to reduce the amount of overspray that is pulled directly through the lift mast and lifting components when a side draft filter bank is behind the lift.

"Lower Rail Scraper - Lower rail scraper is mounted on the base of the lift and contains a spring applied aluminum block to help remove paint overspray from the top of the lower rail. As the lift travels back and forth on rail the block helps to remove build up of paint that could eventually affect lift operation.

Base Bid – One (1) Paint Mix Room

Room Operation

Clean air is introduced into the room through intake filters located at the front of the enclosure and is exhausted through a plenum at the rear of the room. Air is pulled horizontally from the front of the room through the entire working depth.

Subject Model

Working Dimensions: 10'0" Wide x 8'0" High x 15'0" Working Depth

Overall Dimensions: 10'4" Wide x 8'10" High x 16'4" Overall Depth

Construction

18-gauge galvanized steel sheets. Panels are pre-punched and companion flanged for easy assembly. A convenient 4" deep containment base is built-in.

Note: This equipment is designed expressly for the removal of harmful vapors and filtering of air prior to outdoor exhaust.

Exhaust System

1 ea. 10" Heavy-duty radial blade wheel blower (949 Total CFM @ 1/2" s.p.)

1 ea. 1/2 h.p. 115/220 volts, 1 phase, 60 hz TEFC motor

Motor features a heavy gauge steel frame, double sealed ball bearings that are mechanically locked on the shaft end, and bolt on motor base for easy removal. The service factors for the motor are 1.15 for 3-phase power and 1.0 on 1-phase power. UL recognized and CSA certified.

Lighting

4 ea. LED light fixtures, inside access 48" 6-tube, LED, dual voltage-120/277 with 85% color corrected tubes included.

Lights are Class I, Division 2 rated. Lights are ETL & ETL-C listed and are also listed for locations having deposits of readily combustible paint residue. Instant start (starting temperature at 0 degrees F.) T-8 electronic ballast provides greater energy savings. The lamp holders are twist in style. The lights feature front/inside access for easy lamp replacement and are equipped with an interlock switch to disable painting operations when light access door is opened.

Personnel Door

2 ea. Personnel access doors with panic latch (3'0"W x 7'0"H) with 18" x 24" clear tempered glass observation window

Control Panel

1 ea. Pre-wired independent electrical control panel (110v. 1ph.) featuring single point power connection for quick and easy wiring to the line side of the main disconnecting device with NEMA-1 rated enclosure. Includes:

- Non-fused disconnect
- Magnetic motor starter
- Motor fuse protection
- Lighting contactor
- Lighting fuse protection
- Terminal strips for field wiring
- System operating lights
- UL industrial listing

Exhaust Ductwork

1 lot 10" dia. Exhaust ductwork for a 6 ft. minimum termination height above a 35 ft. high roof to include:

- 1 lot Spiral straight duct with inspection door and connecting rings
- 1 ea. Automatic roof ventilator
- 1 ea. Curb cap (Curb by others)

Operational and Safety Equipment

1 set 20" x 20" x 1" Tackified Intake filters with internal wire grids

Assembly Hardware

1 lot Necessary assembly hardware including all required bolts, nuts, & caulking for a complete mechanical assembly.

Services & Documentation

System Engineering

Our Project Engineers are multi-disciplined to design many kinds of finishing control systems that require experience and expertise in mechanical, electrical, controls, and fluid handling. The interaction of all these functions under one roof, allows CCIS to provide our customers with a fully engineered system. Our Project Engineers use a state of the art CAD System to design finishing and control systems. The Project Engineers work closely with your Project Managers to insure that the system designed will meet your expectations. The Project Engineers also work closely with Field Service and Customer Installation personnel insuring that the equipment is being installed properly. The Project Engineers are available to answer, via telephone, technical questions during installation and start-up.

Engineering Services

CCIS will provide the following Engineering Services:

1. Electrical Engineering
2. Mechanical Engineering

On-Site Services

CCIS will provide the following On-Site Services:

1. Project Management
2. Installation Supervision
3. Mechanical & Electrical Installation
4. Man Lifts, Fork Lifts, & Cranes
5. System Startup & Debug

Installation

Installation will be conducted under the direction of the CCIS project manager with non-union labor during normal 7-4 or 8-5 hours. Expedited installation with longer hours and overtime rates are available if time requires, but it will be at an additional cost.

Occasionally, our installation crews work longer or irregular days, at their discretion, so 24 hour access to the installation site is requested.

System Documentation

CCIS will provide the following System Documentation:

1. System Documentation

System Documentation will be provided on one (1) USB Flash Drive.

C. Responsibility of Customer

1. Receive, off load, and store in a safe place miscellaneous items shipped prior to and during installation.
2. Install any fire protection systems as required by buyer's insurance company and/or the authorities having such jurisdiction.
3. Provide for all permits and comply with all local board requirements for air, water pollution control, etc.
4. All building modifications to include concrete work, roof or wall penetrations, curbs, flashing, and weatherproofing.
5. Provide conduit, wiring, piping, and labor required to bring utilities to the quoted equipment connection points.
6. Provide personnel during the start-up and trial period for on-site operational training.
7. Provide CCIS with free and clear access to all installation areas for the duration of the installation.
8. All freight costs, billable after shipping.
9. All sales and use taxes, as required.
10. Any item required but not specifically listed in this proposal will be the responsibility of others

D. Pricing

Base Bid – 100% Spray-Cure Booth w/ Paint Mix Room	\$ 646,440
Base Bid –Mechanical & Electrical Installation	\$ 270,820
	Total = \$ 917,260

Option 1 – 80/20 Spray-Cure Booth w/ Paint Mix Room	\$ 754,980
Option 1 –Mechanical & Electrical Installation	\$ 259,720
	Total = \$ 1,014,700

Freight Estimate* **\$ 43,560**
**Estimate Only. Actual Charges will be Calculated at Time of Shipment.*

E. Delivery

Base Bid – Twelve to sixteen weeks from receipt of signed approval drawings

Shipment of the equipment will be 12-16 weeks after receipt of accepted approval drawings. Approval drawings available approximately 2-3 weeks after receipt of written purchase order and deposit.

F. Terms of Payment

Payment

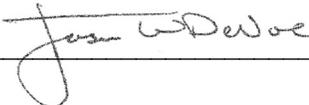
All payments will be due upon receipt of invoice except the final 10% payment which will be due Net 30 Days.

Invoicing

CCIS will invoice the Buyer based on the following schedule:

- 30% - Upon Receipt of Purchase Order
- 30% - With Engineering Approval Drawing Submission
- 30% - Due Prior to Shipment of Equipment
- 10% - Upon Completion and Delivery of Final Documentation

All payment terms will be as indicated above unless agreed upon in writing by CCIS and Buyer. All freight charges are the responsibility of the Buyer. Freight Charges will be pre-paid and invoiced to Buyer. Cancellation of any order for this Equipment or Services under this Proposal are subject to a minimum cancellation charge of 20% plus any money expended by seller for Labor and Material but not to exceed the total order amount. Price does NOT include Taxes, Sales, or Use if applicable, which are the responsibility of the buyer. No travel expenses, onsite expenses, etc. are included in the pricing presented above.

Authorized Signature: _____




C&C INDUSTRIAL SALES

Finishing Equipment & Engineered Finishing Systems

an  industrial solutions company

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Jason W. DeVoe, System Sales Engineer

II. Agreement

NOW, THEREFORE, in consideration of the above-stated proposal, and the mutual promises, covenants and undertakings of the Parties stated herein, the receipt of which is hereby acknowledged, the Parties, intending to be legally bound, agree as follows:

A. Proposal

The proposal as set forth above is hereby incorporated as if set forth herein verbatim.

B. Events Affecting Starting and Completion Dates: Force Majeure

1. The Buyer acknowledges and agrees that the following events may materially change any starting and completion dates:
 - a. Acts of God;
 - b. Accessibility to the facility, which is in the control of the Buyer;
 - c. Execution of Change Order(s) that materially change the extent of the work to be performed under this Agreement;
 - d. Failure of Buyer to meet its obligations as set forth in this Proposal.
2. Force Majeure: Seller's failure or inability to make or Buyer's failure or inability to take, any delivery or deliveries when due, or the failure or inability of either party to effect timely performance of any other obligation required of it hereunder, if caused by "force majeure" as hereinafter defined, shall not constitute a default hereunder or subject the party affected by force majeure to any liability to the other; provided, however, that such excuse for force majeure shall only apply if (a) the party so affected shall promptly notify the other of the existence thereof, of its expected duration, and the estimated effect thereof upon its ability to perform its obligations hereunder, and (b) such party proceeds in a commercially reasonable manner to promptly overcome the same. In addition, such party shall promptly notify the other party when such force majeure circumstance has ceased to affect its ability to perform its obligations hereunder. As used herein, the term "force majeure" shall mean and include any act of God or nature including, but not limited to, storm, earthquake, or flood, or any act of the public enemy, accident, explosion, operational malfunction or interruption, fire, perils of the sea, strikes, lockouts, labor disputes, riots, sabotage, embargo, war, federal, state, or municipal legal restriction or limitation or compliance therewith, failure or delay of transportation, shortage of, or inability to obtain, such operational necessities as raw materials, supplies, equipment, or labor, or any other circumstance of a similar or different nature beyond the reasonable control of the party affected thereby.

C. Notice

Any notice or other communication shall be in writing and shall be given, and be deemed to have been given, if either delivered personally or mailed, postage prepaid, registered or certified mail, return receipt requested, at the respective addresses for the Parties, as indicated above.

D. Delivery

If Seller delivers more goods than Buyer ordered, Buyer shall not have to pay for the excess and Buyer shall return such excess to Seller within ten (10) days of receipt. Time is of the essence for this project. Goods shall be delivered as necessary to meet deadlines as outlined in this Proposal. Buyer's acceptance of a delivery containing less than the required quantity shall not relieve Seller of its obligation to deliver the balance of the ordered goods at the price and on the other terms specified in this order. If it becomes necessary for Seller to deliver the goods before the scheduled delivery date, Buyer shall, at its own expense and risk, provide sufficient storage for the goods. Buyer's acceptance of an early delivery shall not change the payment terms.

E. Inspection

Buyer's employees or agents may enter Seller's premises, during regular business hours, for the purpose of inspecting and testing the goods being provided in conjunction with this Proposal, Seller's process of manufacture of such goods, and any other materials, components, or work-in-process that is to be used in the manufacture of such goods.

F. Authority

The Parties represent and warrant that each has the full power and authority to enter into this Agreement on behalf of such related party, that any required corporate or other action has been duly taken in connection therewith, and that upon execution of this Agreement by each of the Parties, this Agreement shall become a binding obligation of each of the Parties, enforceable against the other in accordance with its terms and applicable law.

G. Representations and Warranties By the Parties

1. Representations and Warranties By Seller: Seller represents and warrants to Buyer that (i) Seller has all necessary experience, qualifications, expertise, authority, licenses and permits to enable it to perform its obligations under the contract formed pursuant to this Proposal, (ii) the contract formed pursuant to this Proposal is the valid and binding obligation of Seller, enforceable against Seller in accordance with its terms, (iii) Seller is solvent and (iv) Seller has not offered or given, and shall not offer or give, any gratuity or thing of value to any employee of Buyer or of any affiliate of Buyer.
2. Representations and Warranties By Buyer: Buyer represents and warrants to Seller that (i) Buyer is a corporation duly organized and validly existing under the laws of its state of incorporation and is qualified and in good standing to do business in any state in which it conducts business, except where failure to so qualify would not have a material adverse effect on the business of Seller, (ii) the contract formed pursuant to this Proposal is the valid and binding obligation of Buyer, enforceable against Buyer in accordance with its terms, and (iii) Buyer is solvent.

H. Breach of Agreement; Remedies

Failure to perform in accordance with the terms of the Agreement constitutes a breach of the Agreement, and the nonbreaching party shall have the right to avail itself of all legal and equitable remedies to enforce this Agreement. Past due balances shall accrue interest at the rate of 1½ percent per month, or the highest rate allowed by law, if less. If any proceeding is brought to enforce any term, covenant, or condition of the Agreement, the prevailing party shall be entitled to recover against the other party its attorney's fees, court costs, recovery and collection costs.

1. Breach By Seller: If Seller breaches any of the terms or provisions of this Agreement, then Buyer shall give Seller written notice of such breach. If Seller shall not cure such breach within ten (10) days after the giving of such notice by Buyer, Buyer may, without prejudice to any other rights or remedies it may have under the terms of this Agreement or under the law:
 - a. Return nonconforming goods to Seller, at Seller's risk and expense, and Seller shall either give Buyer full credit against the price, or promptly repair or replace the goods at Seller's expense;
 - b. Retain the goods and set-off losses against any amount due Seller;
 - c. Repair or replace the goods and charge Seller with the expense; or
 - d. Terminate this Agreement by giving written notice of such termination to Seller; however, such termination shall not relieve Buyer of its obligation to pay for goods and services provided before any breach by Seller.
2. Breach By Buyer: If Buyer breaches any of the terms or provisions of this Agreement, including without limitation, a failure to make payments of the Purchase Price, Seller shall give Buyer written notice of such breach. If Buyer shall not cure such breach within ten (10) days after the giving of notice by Seller, Seller may, without prejudice to any other rights or remedies it may have under the terms of this Agreement or under the law, terminate this Agreement by giving written notice of such termination to Buyer. In the event Seller terminates this Agreement for any reason authorized by this section, Seller shall be entitled to remove from the premises all its equipment, tools, and materials, but shall not, without the permission of Buyer, disassemble any of the Seller's system that has been completed. Buyer shall be responsible for all costs associated with Seller's withdrawal and for any Cancellation Charge as hereinabove defined in the Proposal. All Cancellation Charges described above shall be due and payable by Buyer immediately after Seller has provided Buyer with evidence of all its costs in connection with such termination of this Agreement.

I. Indemnification

1. Indemnification By Seller

- a. Except to the extent caused by Buyer's negligence or misuse of the Seller's system, Seller shall indemnify and hold harmless Buyer, and Buyer's successors, assigns, parents, subsidiaries and affiliates, and the officers, directors, employees and agents of each of them, from and against any and all claims or damages of any nature (including reasonable attorneys' fees) arising out of or relating directly to Seller's performance or nonperformance of the terms of this Agreement, including but not limited to any claim, action, suit or proceeding alleging: (i) infringement or violation of any statute, regulation or rule of law in the manufacture, assembly, packaging or delivery of Seller's system; or (ii) breach of any of the terms or conditions of, or of any representation in, this Agreement. Buyer reserves the right, without being required to do so and without waiver of any indemnity hereunder, to defend any claim, action, suit or proceeding coming within the scope of this indemnity provision. Buyer shall promptly notify Seller in writing of any claim for indemnification, within thirty (30) days of receipt of notice of such claim, and shall render to Seller, at Seller's expense, whatever information and assistance Seller may reasonably require in connection with the defense of such claim.
- b. Unless otherwise provided in this Agreement, Seller warrants that the goods or services provided pursuant to this Agreement, except for those made for Buyer according to Buyer's specifications, do not infringe any valid U.S. intellectual property rights. This warranty is given upon condition that Buyer promptly notify Seller of any claim or suit involving Buyer in which such infringement is alleged, and Buyer shall permit Seller to completely control the defense or compromise of any such claim or suit. Seller does not warrant that the use of the goods or any material made therefrom, whether the goods are used alone or in combination with any other material, will not infringe any intellectual property rights.

2. Indemnification By Buyer: Buyer represents to Seller that Buyer shall be solely responsible for the various systems provided by other vendors to integrate and function successfully with Seller's system, and Buyer Indemnifies and holds Seller harmless for any and all claims or damages that may arise if Seller's system fails for any reason to integrate or function with such other systems.

J. Buyer Items

Any drawings, specifications, documents and other information and any tooling, equipment or other property that Buyer shall furnish to, or acquire from, Seller in connection with Seller's manufacture of the goods or performance of the services ("Buyer Items") shall remain Buyer's property. Seller shall (i) maintain in good condition any Buyer Items, (ii) mark the Buyer Items "**PROPERTY OF BUYER**", (iii) not commingle the Buyer Items with property of Seller or third parties, (iv) allow Buyer to inspect and examine, during normal business hours, any Buyer Items on Seller's premises, and (v) return them to Buyer upon its request.

K. Insurance

Seller shall maintain employee's liability and compensation insurance that will protect Buyer from any and all claims and liabilities made by Seller or any employee or agent of Seller under any applicable worker's compensation or occupational disease acts. All insurance required by this paragraph shall be in amounts and coverages, and shall be issued by insurers, that shall be satisfactory to Buyer. Upon request by Buyer at any time, Seller shall furnish Buyer with certificates evidencing required insurance.

L. Work on Premises

If performance of services or delivery or installation of goods by Seller involves operations by its employees or subcontractors on the premises of Buyer or of an affiliate of Buyer, (i) Seller shall at all times enforce strict discipline and maintain good order among all persons engaged in the activity on the premises and shall cause them to comply with all fire prevention and safety rules and regulations in force at the premises, and (ii) Seller shall keep the premises free from accumulation of waste materials and rubbish caused by its employees or subcontractors and upon completion shall promptly remove all of Seller's equipment and surplus materials.

M. Services

Seller is an independent contractor, and neither Seller nor any of Seller's employees or agents shall be considered agents or employees of Buyer. Seller shall furnish, at Seller's expense, all labor, materials, equipment, transportation, and other items necessary to perform the services as set forth in this Proposal. Under the terms of this Proposal, Buyer is the General Contractor under this Agreement.

N. Nonwaiver

No waiver by a party of any breach of any term, covenant, or condition of this Agreement shall be deemed a waiver of the same or any subsequent breach of the same or any other term, covenant, or condition.

O. Severability

If any provision of the Agreement shall be declared invalid or illegal for any reason whatsoever, then, notwithstanding such invalidity or illegality, the remaining terms and provisions of the Agreement shall remain in full force and effect in the same manner as if the invalid or illegal provision had not been contained herein.

P. Entire Agreement

This Agreement is the complete, exclusive, and entire agreement between the Parties. This Agreement supersedes all prior contemporaneous proposals, oral or written, understandings, representations, conditions, covenants, and all other circumstances between the Parties relating to the subject matter of the Agreement. There are no promises, agreements, conditions, undertakings, warranties, representations, either oral or written, which are express or implied between the parties regarding this Agreement which have not been successfully identified and stated by this Agreement. These terms are final and controlling.

Q. Amendments to Agreement

Any changes, modifications, or amendments to the Agreement shall be in writing and signed by both Parties to be enforceable.

R. Proposal Change Orders

No services or materials, other than those services and materials specified in the Proposal, shall be provided unless the Parties agree in writing to such other services or materials, and the charges for same. Both Parties must sign off on such Change Orders.

S. Governing Law and Jurisdiction

This Agreement shall be governed by, and interpreted in accordance with, the laws of the state of Tennessee. If litigation results from any dispute between the Parties, the Parties consent to the jurisdiction of any state or federal court in Davidson County, Tennessee.

T. Requirements for Acceptance of Agreement

This Agreement was completed and submitted to the Buyer on the date indicated above. The Buyer has until the date stated on Page One of this Proposal by which to accept the terms of the Proposal and Agreement. To accept, the Buyer shall date and sign the Agreement, and deliver the original Agreement, with its Purchase Order and deposit, to CCIS. The Buyer shall keep copies of the Agreement and Proposal for the Buyer's records.

SELLER:

C & C Industrial Sales

By: Jason W. DeVoe

Printed: Jason W. DeVoe

Date: July 17, 2019

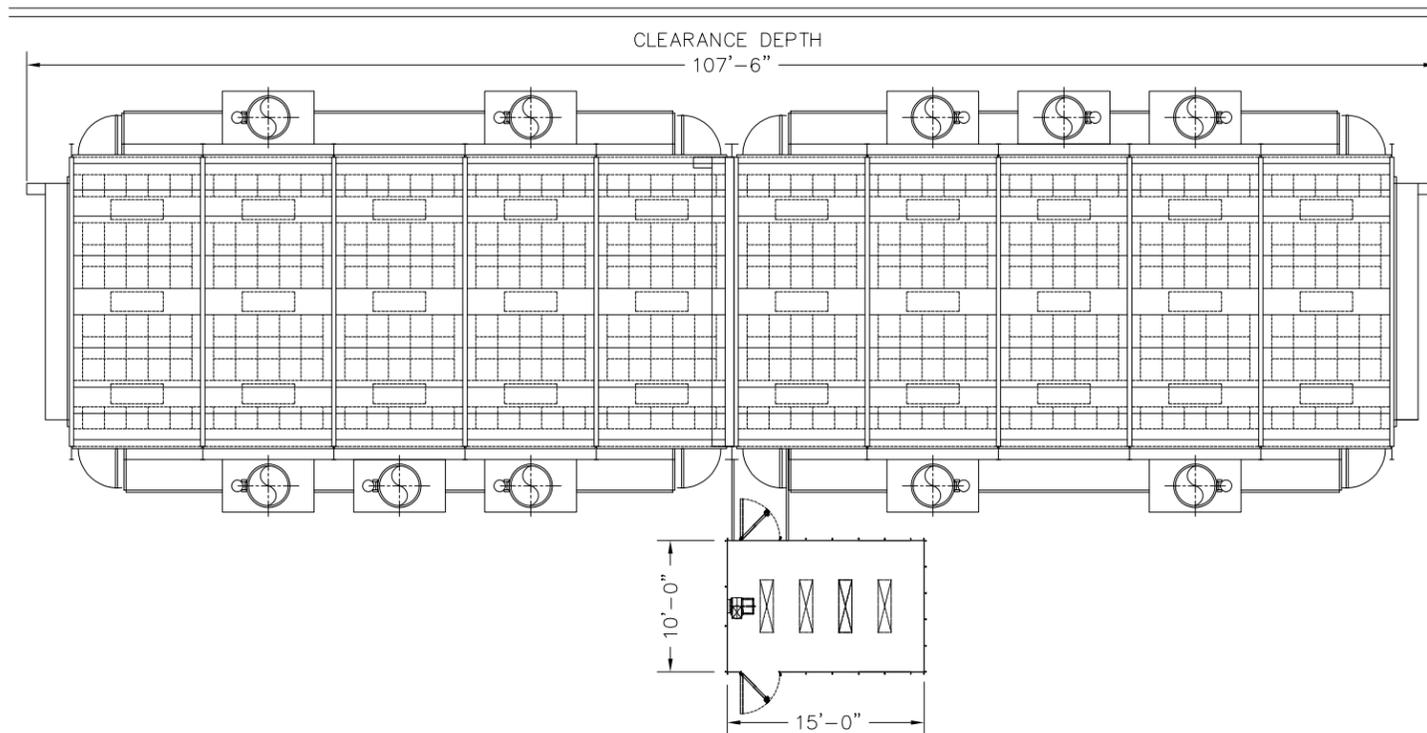
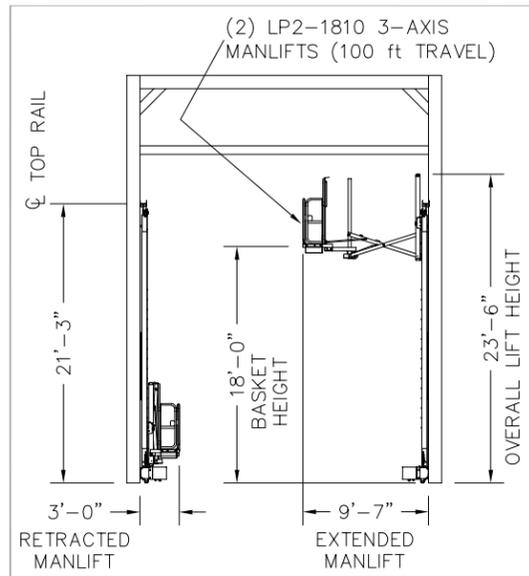
BUYER:

Stadler US, Inc.

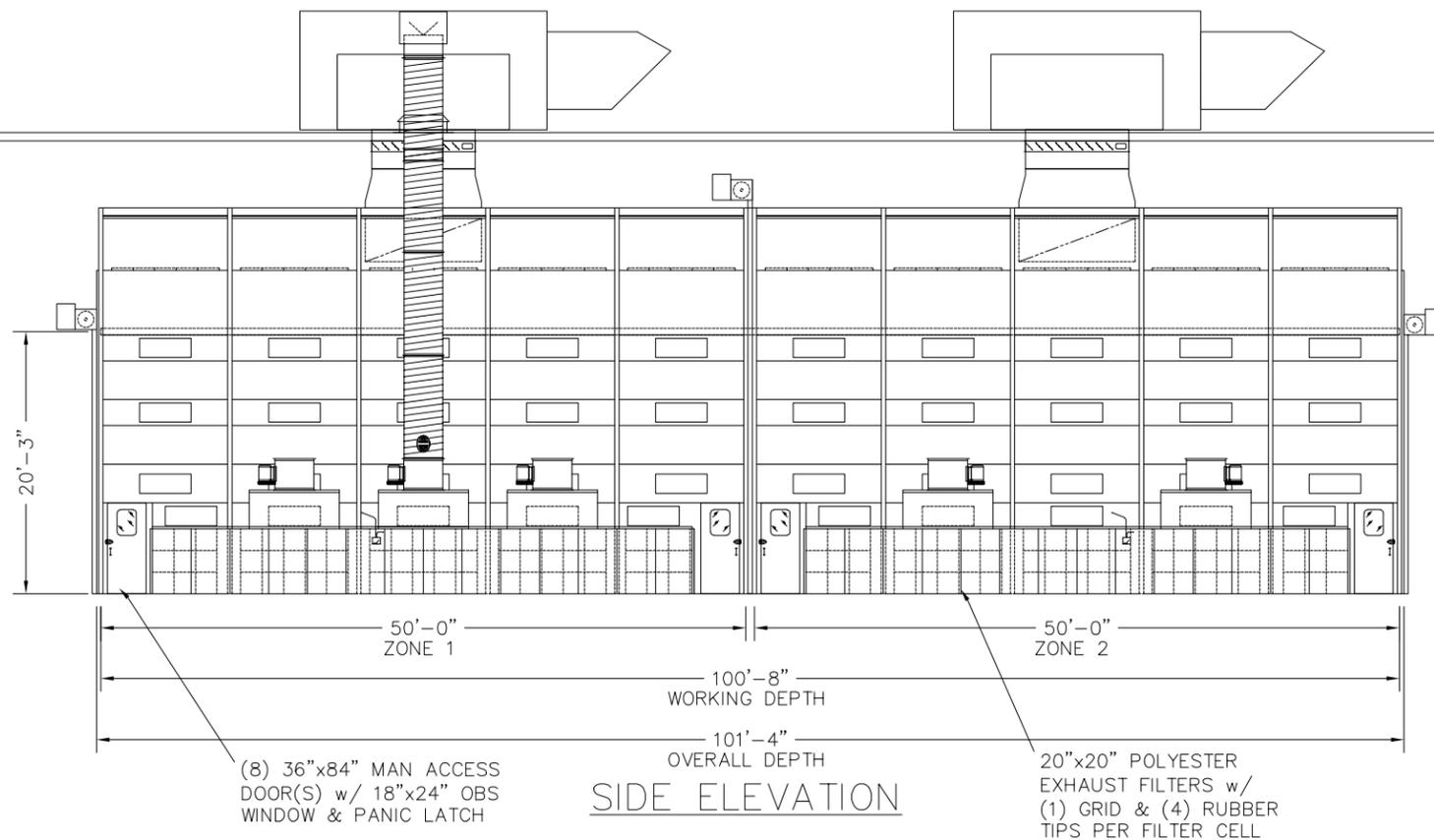
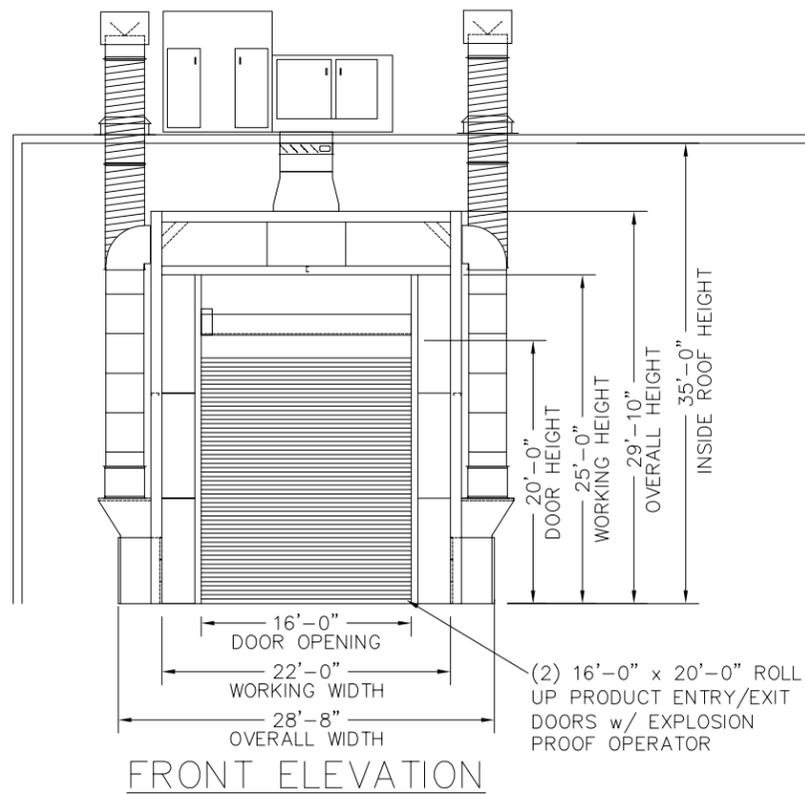
By: _____

Printed: _____

Date: _____



PLAN VIEW



MECHANICAL TOLERANCES
 .XXX ±.005
 .XX ±.05
 XX ±.05
 FRACTIONAL #1/64
 ANGULAR ±1°
 ALL DIMENSIONS ARE IN INCHES
 UNLESS OTHERWISE NOTED

NO.	DATE	BY	REVISION

TITLE:
 STADLER RAIL
 SALT LAKE CITY, UT
 80/20 RECIRC SPRAY BOOTH
 SYSTEM LAYOUT

DRAWN BY: JWD	DATE: 6/19/19
CHECK BY:	SCALE: N/A

C&C INDUSTRIAL SALES
 A subsidiary of
 Otp Industrial Solutions
 Finishing Equipment & Engineered Finishing Systems
 1110 GREGORY DRIVE GALLATIN, TN 37066
 1-800-714-3982 www.CCISinc.com



LMS TECHNOLOGIES, INC.
6423 Cecilia Circle
Bloomington, MN 55439
(952) 918-9060, Fax: (952) 918-9061

Test Report-ASHRAE Test Standard 52.2-2007

Test Requested By:	<u>A.J.Dralle</u>	Report #: 2357
		Test Date: 03/08/2011
Manufacturer:	<u>A.J.Dralle</u>	
Filter ID:	<u>ST-6 Series</u>	
Model Number:	<u>N/A</u>	
Dimensions:	<u>20" x 20" Panel</u>	
Number of Pleats:	<u>N/A</u>	
Filter Description:	<u>Panel Filter</u>	
How Filter Obtained:	<u>Provided by A.J.Dralle</u>	

Test Results

Test Air Flow Rate(CFM)/Velocity (FPM)	<u>1968 cfm / 492 fpm</u>
Initial Resistance (in. WG)	<u>0.544"</u>
Final Resistance (in. WG)	<u>1.000"</u>
Minimum Efficiency Rating Value (MERV)	<u>MERV 10 @ 1968 cfm</u>
Minimum Average Efficiency 0.3 to 1.0 Microns (E1)	<u>12.0</u>
Minimum Average Efficiency 1.0 to 3.0 Microns (E2)	<u>51.4</u>
Minimum Average Efficiency 3.0 to 10 Microns (E3)	<u>85.3</u>
Dust Fed to Final Resistance (grams)	<u>92.1 grams</u>
Dust Holding Capacity (grams)	<u>77.0 grams</u>
Arrestance:	<u>83.6%</u>

Test Description

Temp & Humidity:	<u>71° F @ 33%</u>
Particle Analysis:	<u>Hiac/Royco FE-80</u>
Test Dust:	<u>ASHRAE 52.1 Dust</u>
Test Aerosol:	<u>KCl, Neutralized</u>
LMS#:	<u>#1165</u>

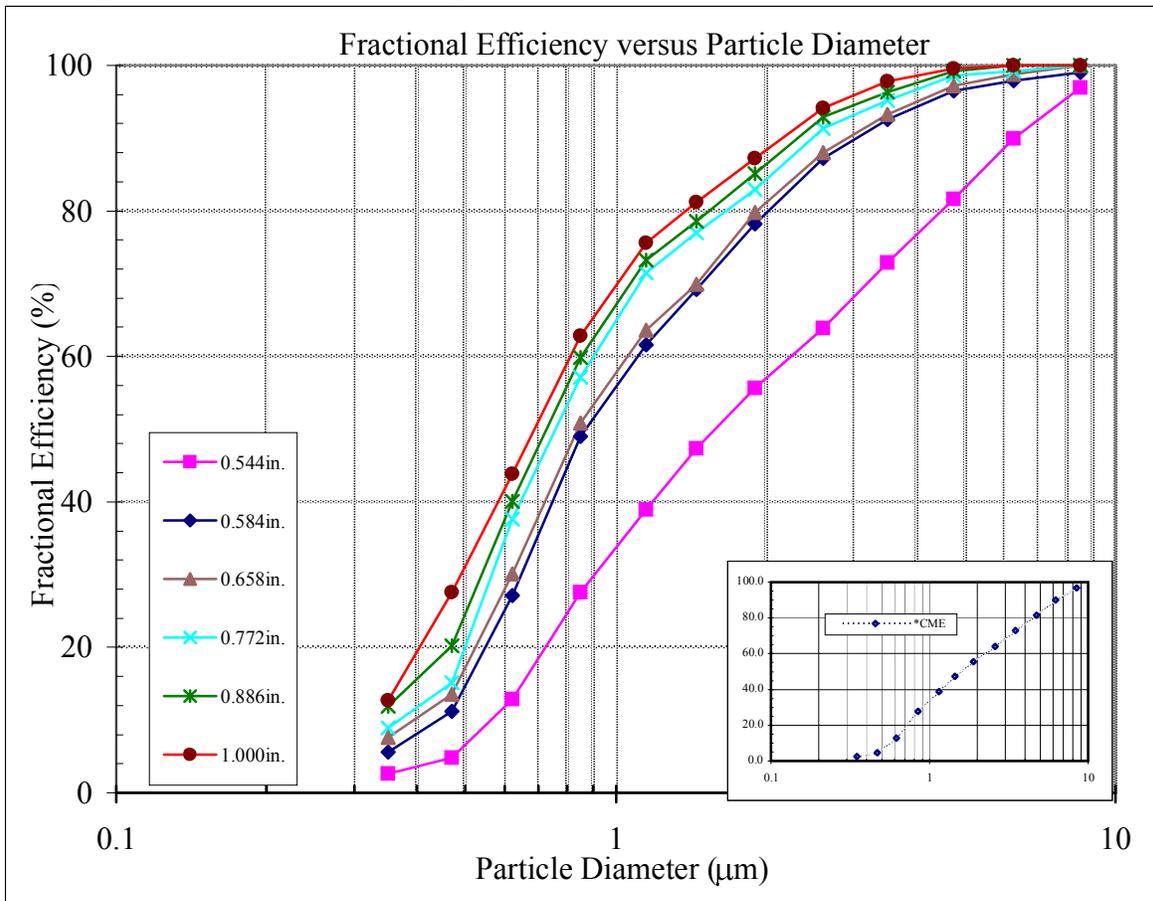
Test Engineer :	<u>Al Vatine/Emile Tadros/Pat Best/Jose Tizcareno/Neima Mehran</u>
Approved By:	<u>K. C. Kwok, Ph.D.</u>

LMS Technologies, Inc.
6423 Cecilia Circle
Bloomington, MN 55439
(612) 918-9060, Fax: (612) 918-9061

Date :	March 8, 2011	Requested by :	A.J.Dralle
Filter ID :	ST-6 Series Panel Filter	Manufacturer :	A.J.Dralle
Test Type :	52.2-2007 REP# 2357		
Test Aerosol :	KCl, Neutralized		

ΔP (" H ₂ O)	0.544in.	0.584in.	0.658in.	0.772in.	0.886in.	1.000in.	*CME
Size Range (μm)	Fractional Efficiency (%)						
0.3-0.4	2.6	5.6	7.6	8.9	11.9	12.7	2.6
0.4-0.55	4.8	11.2	13.6	15.1	20.2	27.6	4.8
0.55-0.7	12.9	27.1	30.1	37.6	40.1	43.8	12.9
0.7-1.0	27.6	49.0	50.8	57.1	59.8	62.8	27.6
1.0-1.3	38.9	61.6	63.6	71.5	73.2	75.6	38.9
1.3-1.6	47.3	69.2	69.9	77.0	78.6	81.2	47.3
1.6-2.2	55.6	78.2	79.8	82.9	85.1	87.2	55.6
2.2-3.0	63.9	87.2	88.0	91.3	92.9	94.1	63.9
3.0-4.0	72.9	92.6	93.3	95.2	96.3	97.8	72.9
4.0-5.5	81.6	96.5	97.2	98.6	99.2	99.6	81.6
5.5-7.0	89.9	97.9	98.8	99.2	100.0	100.0	89.9
7.0-10.0	96.9	99.0	100.0	100.0	100.0	100.0	96.9

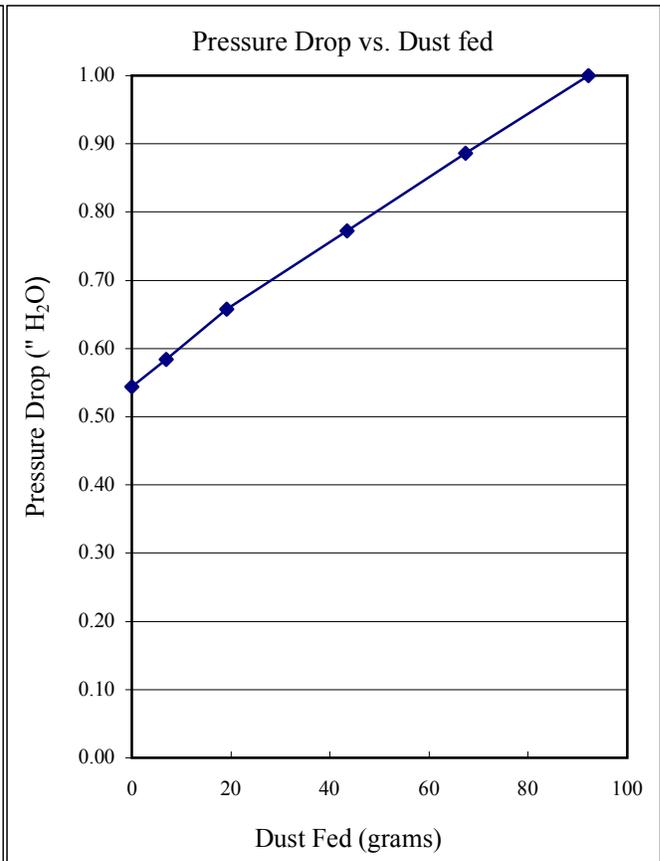
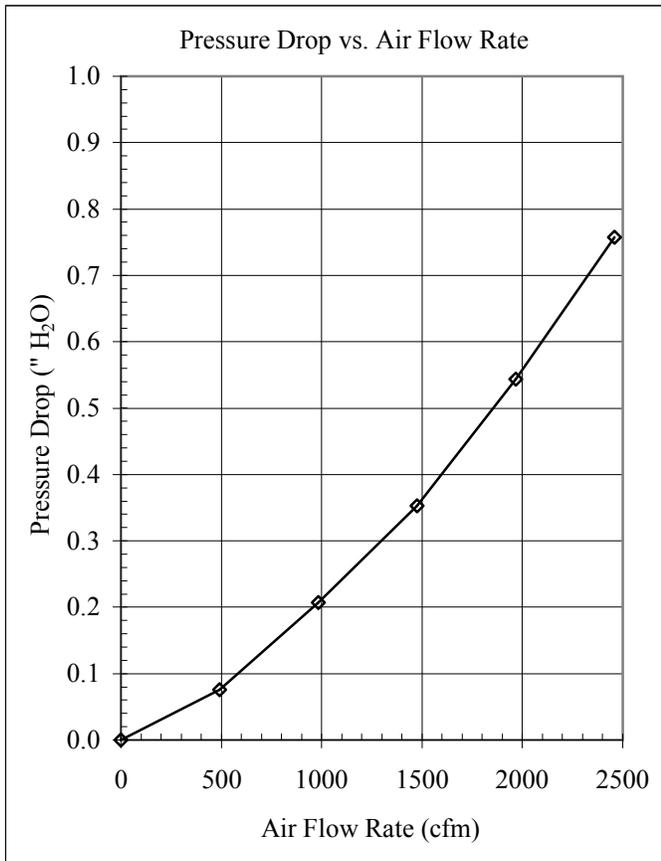
* Composite Minimum Efficiency



LMS Technologies, Inc.
6423 Cecilia Circle, Bloomington, MN 55439
(952) 918-9060, Fax: (952) 918-9061

Date: March 8, 2011	Test Requested by : A.J.Dralle
Filter ID : ST-6 Series Panel Filter	Filter Manufacturer : A.J.Dralle
Test Type : Pressure Drop of Clean Filter For ASHRAE 52.2-2007 REP# 2357	

Flow Rate (CFM)	Velocity FPM	dP (mm H2O)	Pressure drop ("H2O)	% of Rated Airflow	Dust fed	Pressure drop
0	0	0.00	0.000	0%	0.00	0.544
492	123	1.92	0.076	25%	6.90	0.584
984	246	5.27	0.207	50%	19.20	0.658
1476	369	8.97	0.353	75%	43.50	0.772
1968	492	13.82	0.544	100%	67.30	0.886
2460	615	19.24	0.757	125%	92.10	1.000



Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY**Polyester Batting, Thermally Bonded**

*Note: Blank spaces are not permitted. If any item is not applicable, or no
information is available, the space must be marked to indicate that.*

Section I**SUPPLIER'S NAME**

BONDED FIBERS MIDWEST, INC.
P.O. Box 332
1450 Racine Street
Delavan, Wisconsin 53115

Emergency Telephone Number

262-728-8464

Telephone Number for Information

262-728-8464

Date Prepared

03/07/07

Date Revised**Signature of Preparer (optional)****Section II - Hazardous Ingredients/Identify Information**

Hazardous Components (Specific Chemical Identity;
Common Name (s))

OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
----------	-----------	-----------------------------	--------------

None Listed

OSHA PEL
ACGIH TLV
Rat Oral LD50

NA

Proprietary product composed of polyethylene terephthalate (polyester), thermally bonded

Section III - Physical/Chemical Characteristics

Boiling Point	Solid	NA	Specific Gravity (H ₂ O = 1)	1
Vapor Pressure (mm Hg.) at 20 C	ND		Melting Point	Decomposes
Vapor Density (AIR = 1)	ND		Evaporation Rate (Butyl Acetate = 1)	Solid NA
Solubility in Water	Not Soluble			

Appearance and Odor

White, fluffy, fiber-like material

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used)	Degree F > 436	Flammable Limits	LEL	UEL
Extinguishing Media	Water			
Special Fire Fighting Procedures	Standard Precautions			
Unusual Fire and Explosion Hazards	ND			

This information is believed correct at the time of preparation of this MSDS, but it is to be used only as a guide for
handling the chemical.

NA=Not applicable ND=Not Determined

Section V - Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid)

Non-reactive to acid, base, or water

Hazardous Decomposition or By-Products

None Known

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry: Inhalation? YES Skin? YES Ingestion YES

Health Hazardous (Acute and Chronic)

None known, potential membrane or skin irritant

Carcinogenicity: Not listed NTP? IARC Monographs? OSHA Regulated?

Signs and Symptoms of Exposure

Skin irritation - Erythema, itching

Medical Conditions**Generally Aggravated by Exposure**

None known

Emergency and First Aid Procedures

In case of eye or skin contact, flush with water. In case of inhalation, provide fresh air, oxygen.

Contact physician.

Section VII - Precautions for Safe Handling and Use**Steps to be Taken in Case Material is Released or Spilled**

NA - Solid. Prevent from blowing - light material could be scattered

Waste Disposal Method

Contact landfill

Precautions to Be Taken in Handling and Storing

Normal precautions

Other Precautions**Section VIII - Control Measures****Respiratory Protection (Specify Type)**

Dust filter - if necessary

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other
	X	

Protective Gloves

Latex or cloth

Eye Protection

Normal protection

Other Protective Clothing or Equipment

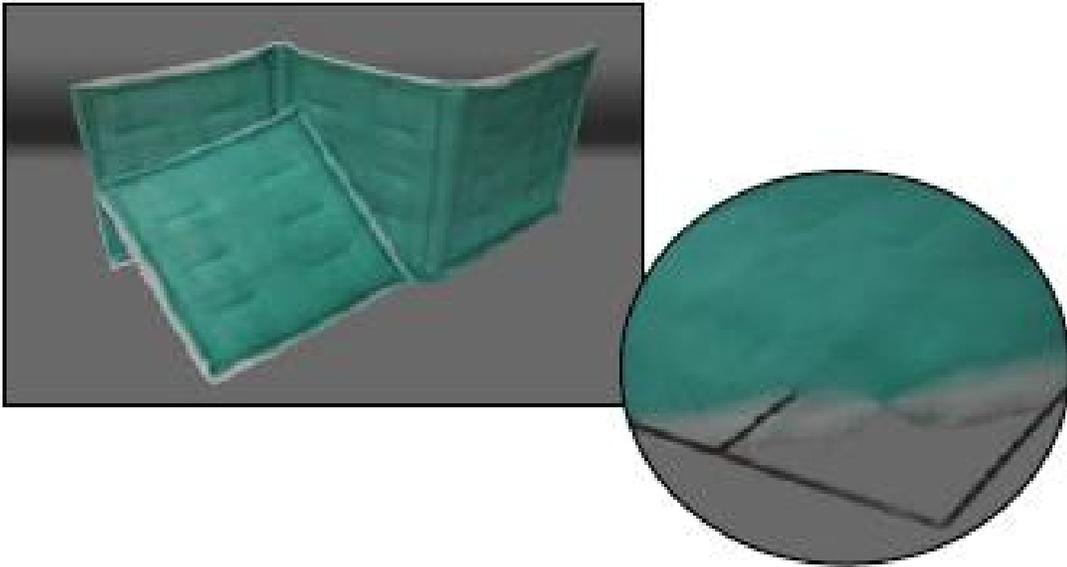
Normal attire

Work/Hygienic Practices

Normal practices

ST Series

Filters for Paint Booth Supply, Downdraft & Crossdraft Booths



The ST Air Filtration Series is manufactured for use in a variety of paint booth intake and crossdraft applications. The ST Series panels and links are constructed using a 1/2" dry polyester layer on the air entry side and a 1/2" heavily tackified polyester layer on the air exiting side with an internal metal frame. When installed, these filters are self sealing around the perimeter to avoid any air bypass around the filter. The ST Filter System is available in panels, links, two-pocket bags and cubes.

High Quality - Cost Effective

All Components UL Listed



1830 W. Mound Rd. ♦ Joliet, IL 60436
815-730-0505 ♦ Fax: 815-730-0565
www.AJDralle.net

Appendix I
Federal and State Requirements
Stadler Industries – Salt Lake City, Utah

Salt Lake County is a non-attainment area for some criteria pollutants. Based on the type and quantity of emissions, the New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs) Maximum Achievable Control Technology (MACT) and Title V of the 1990 Clean Air Act do not apply to the Stadler Salt Lake City location. Subsequently, Stadler will not need a Title V Operating Permit. The site will comply with Utah DAQ Regulation R307-350 Miscellaneous Metal Parts and Products Coatings.



Dylan Frederick <dfrederick@utah.gov>

NOI Received Stadler Rail

24 messages

Dylan Frederick <dfrederick@utah.gov>
To: dnye@rmec.net

Mon, Dec 21, 2020 at 3:45 PM

Dear Mr. Nye,

The DAQ received your permit application (NOI) on 12/18/2020. I will be the project engineer and will review your NOI in the coming weeks. I will notify you if your NOI meets the minimal application requirements of R307-401-5 or if additional information will be needed.

The review process and anticipated timelines are:

- Review of Minimal Application Requirement and Additional Information Request – 30 days from NOI received
- Technical Review and Drafting Engineering Review – 30 days from date of complete NOI
- Internal reviews (peer, modeling, compliance) – 14 days from completed draft Engineering Review
- Source Review – 10 days for source to review Engineering Review and draft permit conditions
- Start of Public Comment Period – 7 days from source approval of Engineering Review
- Public Comment Period – 30 days (potential extension up to 30 days if requested)
- Final AO – 14 days from end of public comment period

The timelines above are estimates, and listed for your reference only. Actual timelines may change depending on staff work load, project complexity, public comments received, etc. Please note that if your NOI does not meet the minimum application requirements within 90 days of the date of initial NOI receipt, DAQ may issue an order prohibiting construction.

Feel free to contact me if you have any questions.

Thanks,

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



Emails to and from this email address may be considered public records and thus subject to Utah GRAMA requirements.

Dylan Frederick <dfrederick@utah.gov>
To: dnye@rmec.net

Thu, Jan 14, 2021 at 4:30 PM

Good Afternoon,

I've reviewed the application sent in for Stadler Rail, and there is one piece of information remaining that I need to mark the application complete. There should be a review of potential controls for the emergency diesel engine in the BACT section. The small natural gas boilers are exempt from this requirement, but the diesel generators are not. This analysis doesn't have to be extensive as the engine is, relatively, a very small source of emissions. For an emergency engine of its size I don't expect there would be controls that are either technically or economically feasible to implement according to the definition of BACT in R307-401.

Please submit an addendum that considers potential add on controls for the emergency engine or an upgrade to an engine that is EPA certified to a more stringent emission standard. Please let me know if you have any questions about this request.

Thank you,

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Thu, Jan 21, 2021 at 2:57 PM

Dylan,

Please find the attached updated Appendix for BACT with additional info on the generator. Sorry for any confusion.

Thank you,

Dan Nye, MSPH, CIH
Contractor
RMEC Environmental, Inc.
785 North 400 West, Salt Lake City, UT 84103
Office: 801.467.3661 Mobile: 801.599.3714

[Quoted text hidden]

 **3989-Stadler_NOI_Appendix G Update BACT Generator.pdf**
197K

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Thu, Jan 21, 2021 at 2:59 PM

Daniel,

Thank you! I'll let you know if there is anything else I need for my review.

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Wed, Feb 3, 2021 at 1:43 PM

Daniel,

Just wanted to send an update and ask one quick question. I am almost done with the technical review, and will begin internal reviews of the document tomorrow. Once those are done, you will have a chance to review the draft permit as well and make any comments or changes that are needed.

The question I had is that the SIC code provided in the application doesn't seem to be correct. The application said it was 3737 which isn't an existing code, my guess is that 3743 would be more accurate? Please let me know what would be correct, thank you!

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Wed, Feb 3, 2021 at 1:59 PM

One more note: I couldn't confirm that n-butyl acetate was considered a HAP. To fix this, I wanted to ask if you'd prefer I just adjust the permit emission totals and limits to reflect the total HAPs without n-butyl acetate, or if you'd like to submit an updated emission calculation that excludes n-butyl acetate. Let me know what works best for you, and if you have any questions, do not hesitate to call me.

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Fri, Feb 12, 2021 at 12:02 PM

Sorry for the delay – Yes, 3743 is the SIC Code.

[Quoted text hidden]

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Fri, Feb 12, 2021 at 12:04 PM

Dylan,

I'd say Option 1 would be best, simply adjust the permit values accordingly (without the offending acetate compound). We assign HAPs as they are denoted on SDS sheets, so I wonder if that's there the compound came from on our emission inventory.

[Quoted text hidden]

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Tue, Feb 16, 2021 at 11:02 AM

Daniel,

I've adjusted the totals, the new total for HAPs that will be enforced in the permit is 1.91 tons per year. Thank you for confirming the SIC code as well. I've sent the draft to my peer for review, so we are now at the internal reviews stage.

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Tue, Feb 16, 2021 at 10:58 AM

Sounds good, thank you.

Daniel E. Nye, MSPH, CIH
RMEC Environmental, Inc.
[785 N 400 W](#)
[Salt Lake City, Utah 84103](#)
Ofc: 801.467.3661
Mobile: 801.599.3714
Dnye@rmec.net

-Sent from a mobile device -

From: Dylan Frederick <dfrederick@utah.gov>
Sent: Tuesday, February 16, 2021 11:02:51 AM

[Quoted text hidden]

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Tue, Feb 23, 2021 at 2:00 PM

Good Afternoon,

I've gone through the first of our internal reviews, and the reviewer pointed out that the paint arrestor filters have an 'arrestance' value of 83.6%, which accounts for the control over all particulate matter 10 nm to 0.3 nm. Since this is representative of the product being installed, I'd like to request the emission calculation for the paint booths be redone to reflect this control efficiency, rather than the assumed value of 95%. This would change the total PM from the booths from 164 lbs to 539 lbs based on my own calculation. Please let me know if there are any issues with this change, thank you.

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Mon, Mar 15, 2021 at 4:18 PM

Daniel,

I just wanted to follow up on my last request, have you had a chance to make this update to the emission calculations?

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Mon, Mar 15, 2021 at 4:38 PM

Dylan,

Thanks for the reminder – I think this may have gotten hung up in our reviews process.

I'll make sure you get the new info this week.

Regards,

[Quoted text hidden]

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Mon, Mar 15, 2021 at 4:47 PM

No problem, thanks for the update!

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Wed, Mar 17, 2021 at 1:28 PM

Dylan,

Please find the attached update.

Thanks you!

[Quoted text hidden]

[Quoted text hidden]

 **3989-Stadler_NOI Consolidated_Update Paint Booth.pdf**
167K

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Mon, Apr 12, 2021 at 8:00 AM

Daniel,

I have gotten review comments back from our compliance team that I need some help with.

1. What application methods are being used in the paint booths? Are HVLP spray guns being used?
2. What is the year the emergency engine was manufactured and/or installed? What measures can be taken to verify the engine will meet tier 3 emission standards going forward? Is there an expected lifetime of the equipment?
3. Does the facility have any solvent cleaning operations or degreasing operations that are applicable to R307-304 and R307-335 in the Utah Air Quality rules?

Thanks for any help you can provide, let me know if you want to call me to discuss any of these questions further.

Dylan

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Mon, Apr 12, 2021 at 2:44 PM

Daniel,

I had one more thing to add regarding the emergency engine, would it be feasible to do an emission test like an exhaust gas analysis for the emergency engine? I'm trying to think of a way to have a record of the emission rate from the engine when its at site conditions, I was told by compliance that the emissions data provided in the BACT addendum might not be applicable if the conditions in the test were not the same conditions the engine will run at on site.

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Tue, Apr 13, 2021 at 7:46 AM

Good morning,

I'll look into this and get back to you.

Thank you!

Sent from my iPhone
Daniel Nye, MSPH, CIH
RMEC Environmental, Inc
801-467-3661 OFFICE
801-599-3714 MOBILE

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Tue, Apr 27, 2021 at 10:54 AM

Dylan,

Let me know if this is what you need.

Thanks,

[Quoted text hidden]

[Quoted text hidden]

 **3989-Stadler_NOI Consolidated_Appendix Update 2 BACT Generator.pdf**
212K

Dylan Frederick <dfrederick@utah.gov>
To: Daniel Nye <dnye@rmec.net>

Tue, Apr 27, 2021 at 11:58 AM

Looks good to me. I'll work on incorporating it, thank you!

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>
To: Dylan Frederick <dfrederick@utah.gov>

Thu, Apr 29, 2021 at 9:43 AM

Cc: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>, Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Dylan,

Thanks for your help on this submission. Please, let us know if you need any more information. In addition, what kind of timeframe are we looking at right now for completion?

Regards,

[Quoted text hidden]

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>

Thu, Apr 29, 2021 at 11:42 AM

To: Daniel Nye <dnye@rmec.net>

The compliance review was what I was finishing with your information, all that remains is the management review, before you will receive the permit to review. Once we have your approval, we will start the 30 day public comment period, and once that is done, it should take another week or so to complete.

[Quoted text hidden]

Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>
To: Daniel Nye <dnye@rmec.net>, Dylan Frederick <dfrederick@utah.gov>
Cc: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>

Tue, May 18, 2021 at 9:44 AM

[Any update?](#)

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Tue, May 18, 2021 at 12:04 PM

Yes, I received approval from my peer today, the permit is now being reviewed by management.

[Quoted text hidden]



Dylan Frederick <dfrederick@utah.gov>

Stadler Rail Approval Order Final Draft Questions

15 messages

Dylan Frederick <dfrederick@utah.gov>

Thu, May 27, 2021 at 1:47 PM

To: Stephen.Forster@stadlerrail.com, Daniel Nye <dnye@rmec.net>, Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Good Afternoon,

The final draft of the requested approval order is currently being written up, and management had a question about the materials being used on site. For the painting and coating operations on site, do any materials contain chromium, lead, manganese, nickel, or cadmium? Please let me know, and if possible please send any relevant SDS sheets on the materials used so we can have a record of the emitting materials, thank you.

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529airquality.utah.gov

Emails to and from this email address may be considered public records and thus subject to Utah GRAMA requirements.

Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>

Thu, May 27, 2021 at 2:31 PM

To: Dylan Frederick <dfrederick@utah.gov>, Daniel Nye <dnye@rmec.net>, Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

No none of our paints or coatings contain any of those materials and they never will. If you need any of the SDS's, we have supplied all of them to Dan.

Best regards,

Stephen Forster
Environmental, Health and Safety Officer

Stadler US Inc.
5880 W 150 S
Salt Lake City, Utah 84104
United States

Tel

Fax

Mobile +1 (801) 970-1221

stephen.forster@stadlerrail.com
www.stadlerrail.com

Stadler has revised its privacy policy.
Please follow this link: <https://www.stadlerrail.com/en/privacypolicy/>



Please consider your environmental responsibility before printing this e-mail

From: Dylan Frederick [mailto:dfrederick@utah.gov]
Sent: Thursday, May 27, 2021 1:48 PM
To: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>; Daniel Nye <dnye@rmec.net>; Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>
Subject: [EXTERNAL]Stadler Rail Approval Order Final Draft Questions

Good Afternoon,

The final draft of the requested approval order is currently being written up, and management had a question about the materials being used on site. For the painting and coating operations on site, do any materials contain chromium, lead, manganese, nickel, or cadmium? Please let me know, and if possible please send any relevant SDS sheets on the materials used so we can have a record of the emitting materials, thank you.

--

Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



[Quoted text hidden]

Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Tue, Jun 1, 2021 at 10:55 AM

To: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>, Dylan Frederick <dfrederick@utah.gov>, Daniel Nye <dnye@rmec.net>

Hi Dan and Dylan,

Has this been resolved now?

Nold

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov> Tue, Jun 1, 2021 at 10:58 AM
To: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>
Cc: **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>, **Daniel Nye** <dnye@rmec.net>

Hello,

That did answer my questions, I'll be working on the final draft again today. Dan, please send me the SDS sheets when you get a chance.

[Quoted text hidden]

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



[Quoted text hidden]

Woitke Nold STAUS <Nold.Woitke@stadlerrail.com> Tue, Jun 8, 2021 at 11:01 AM
To: **Dylan Frederick** <dfrederick@utah.gov>
Cc: **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>, **Daniel Nye** <dnye@rmec.net>

[Any Updates ?](#)

[Quoted text hidden]

Daniel Nye <dnye@rmec.net> Wed, Jun 9, 2021 at 7:06 AM
To: **Dylan Frederick** <dfrederick@utah.gov>

Dylan,

Please find the attached data sheets from Stadler.

Dan Nye, MSPH, CIH

Contractor

RMEC Environmental, Inc.

785 North 400 West, Salt Lake City, UT 84103

Office: 801.467.3661 Mobile: 801.599.3714

From: **Dylan Frederick** <dfrederick@utah.gov>
Date: Tuesday, June 1, 2021 at 10:58 AM
To: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>

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9 attachments

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 **20210104_215249_000001727700001.MHP.PDF**
24K **20210104_215333_000001728100001.MHP.PDF**
25K **20210104_215543_000001728700001.MHP.PDF**
25K **20210104_214412_000001725800001.MHP.PDF**
24K **20210104_214450_000001726000001.MHP.PDF**
24K **20210104_214634_000001726200001.MHP.PDF**
24K **20210105_154532_000002206000001.MHP.PDF**
24K

Daniel Nye <dnye@rmec.net>

Wed, Jun 9, 2021 at 7:23 AM

To: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>, **Dylan Frederick** <dfrederick@utah.gov>Cc: **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>

Hello,

No word on anything yet.

Regards,

Dan Nye, MSPH, CIH**Contractor****RMEC Environmental, Inc.**

785 North 400 West, Salt Lake City, UT 84103

Office: 801.467.3661 Mobile: 801.599.3714

From: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>**Date:** Tuesday, June 8, 2021 at 11:01 AM**To:** **Dylan Frederick** <dfrederick@utah.gov>**Cc:** **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>, **Daniel Nye** <dnye@rmec.net>

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Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Wed, Jun 9, 2021 at 7:51 AM

To: **Daniel Nye** <dnye@rmec.net>, **Dylan Frederick** <dfrederick@utah.gov>Cc: **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>

Hello,

Can we set up a call and talk see where we can help to expedite it?

Nold

[Quoted text hidden]

Daniel Nye <dnye@rmec.net>

Wed, Jun 9, 2021 at 7:52 AM

To: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>, **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>, **Dylan Frederick** <dfrederick@utah.gov>

Yes thanks

Daniel E. Nye, MSPH, CIH
RMEC Environmental, Inc.
785 N 400 W
Salt Lake City, Utah 84103
Ofc: 801.467.3661
Mobile: 801.599.3714
Dnye@rmec.net

-Sent from a mobile device -

From: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>

Sent: Tuesday, June 1, 2021 10:55:06 AM

To: **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>; **Dylan Frederick** <dfrederick@utah.gov>; **Daniel Nye** <dnye@rmec.net>

[Quoted text hidden]

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>

Fri, Jun 11, 2021 at 11:24 AM

To: **Daniel Nye** <dnye@rmec.net>

Cc: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>, **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>

Hello All,

My apologies for the late response, I've had a bad stomach bug for the past few days and was out sick. I will be sending the revised draft with this new information over for another management review today, and barring any new questions from management, the only remaining steps are your review of the final draft, and for the draft to be sent to public comment. There isn't a ton we can do to speed up the process as the 30-day comment period is mandatory by state rule, but I can let my manager know that you'd like this done ASAP, and we can prioritize finishing the work on our end to get the draft out for comment. Please let me know if that sounds ok with you all, or if there is anything else I can help you with. Thank you.

[Quoted text hidden]

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>

Fri, Jun 11, 2021 at 3:30 PM

To: **Daniel Nye** <dnye@rmec.net>

Cc: **Woitke Nold STAUS** <Nold.Woitke@stadlerrail.com>, **Forster Stephen STAUS** <Stephen.Forster@stadlerrail.com>

Good Afternoon,

I have the final draft for you all to review. Please let me know if there are any changes that need to be made or any questions you have. You can write in edits on the attached word document if that is easiest, just leave comments or track changes so I know what to change. Once we have a draft that works for you, please return a signed copy to me, and we will move this forward to public comment.

[Quoted text hidden]

 **RN160040002-21 6-11-21.rtf**
1598K

Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>
To: Dylan Frederick <dfrederick@utah.gov>, Daniel Nye <dnye@rmec.net>
Cc: Waitke Nold STAUS <Nold.Waitke@stadlerrail.com>

Mon, Jun 14, 2021 at 10:04 AM

Dylan,

Did you send us the correct permit? The attached is for Dominion and we are Stadler Rail.

Best regards,

Stephen Forster
Environmental, Health and Safety Officer

Stadler US Inc.
5880 W 150 S
Salt Lake City, Utah 84104
United States

Tel

Fax +1 (801) 854 7772

Mobile +1 (801) 970-1221

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>
To: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>
Cc: Daniel Nye <dnye@rmec.net>, Waitke Nold STAUS <Nold.Waitke@stadlerrail.com>

Mon, Jun 14, 2021 at 11:34 AM

My apologies, the correct document is attached here. Sorry about the error, I had this document and the other one right next to each other in my folder and must have mistakenly clicked the wrong one.

[Quoted text hidden]

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



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 **RN160420001-21 6-11-21.rtf**
1517K

Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>

Thu, Jun 24, 2021 at 5:44 PM

To: Daniel Nye <dnye@rmec.net>, Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>, Dylan Frederick <dfrederick@utah.gov>

Gentlemen,

I'm sorry about just getting back to the two of you, but originally after you had sent me this permit I had left a message to Dan to call me about the edits. I still haven't heard from Dan.

So the location is only allowed 5.11 Tons of VOC? Is that correct and below are my generator issues but otherwise it looks good.

I don't remember our generator being that large.

2. One (1) 320 hp Emergency Engine

It says that the generator is limited to 100 hours for Maintenance and testing, is there a reason for that? The system only runs for like thirty minutes per month to checks its own system.

Best regards,

Stephen Forster
Environmental, Health and Safety Officer

Stadler US Inc.
5880 W 150 S
Salt Lake City, Utah 84104
United States

Tel

Fax +1 (801) 854 7772

Mobile +1 (801) 970-1221

stephen.forster@stadlerrail.com
www.stadlerrail.com

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Please follow this link: <https://www.stadlerrail.com/en/privacypolicy/>



Please consider your environmental responsibility before printing this e-mail

[Quoted text hidden]

Dylan Frederick <dfrederick@utah.gov>

Mon, Jun 28, 2021 at 4:51 PM

To: Forster Stephen STAUS <Stephen.Forster@stadlerrail.com>

Cc: Daniel Nye <dnye@rmec.net>, Woitke Nold STAUS <Nold.Woitke@stadlerrail.com>

Stephen,

The limit on VOCs is correct. That covers pretty much all of the painting/coating operations for the site. The condition doesn't require that you keep track of trace emissions of VOCs from other equipment. The number given there was based on a pretty conservative estimate, and accounted for pretty much every material used at the facility. Based on what we received in the application, we wouldn't expect you to reach the 5.11 ton limit in any given year, unless your production significantly increases, in which case, you would need to update your permit with us anyways.

The engine size listed on the permit was what I was given in the original application. If this size has changed, we can adjust that in the equipment list. We just need the engine rating that is listed on the nameplate of the generator. You can also revise the calculations to match this new value if you would like, as that would slightly decrease the total emissions accounted for at the facility.

The 100 hour limit is from federal regulations on these engines I believe. The definition of an emergency engine allows for 100 hours per year to do tests on the system like you mentioned, as well as any other maintenance work needed. Some of the regulations change if it is not considered an emergency engine, which we don't want to unnecessarily enforce on the engine if it isn't operating for more than 100 hours a year. That's the background on why that particular number is used, the condition itself is just standard language we use in all permits that have emergency engines, unless they're old permits.

I hope that answers some of your questions, I know this stuff can be confusing so I hope my explanations aren't too dense. Let me know if you wanted to change what it says for the emergency generator.

[Quoted text hidden]

--



Dylan Frederick

Environmental Engineer | Minor NSR Section

P: (385) 306-6529

airquality.utah.gov



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January 21, 2021

Dylan Frederick
Utah Division of Air Quality
195 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

SUBJECT: TRANSMITTAL OF BACT ADDENDUM

RE: Stadler Rail BACT Analysis for Diesel Generator
5880 W 150 S
Salt Lake City, Utah 84104

Dear Mr. Frederick:

On behalf of our clients, Stadler Rail, RMEC Environmental, Inc. is providing the Utah Division of Air Quality (UDAQ) with the enclosed Best Available Control Technology addendum supporting documentation for the above-referenced facility located in Salt Lake City, Utah.

You will find the following application materials transmitted herewithin:

- Appendix G: BACT Analysis

If you have any questions, concerns, or need any additional information, please feel free to contact me at the RMEC offices at (801) 467-3661, or by email: dnye@rmec.net.

Sincerely,

Daniel E. Nye, MSPH, CIH
Senior Scientist
RMEC ENVIRONMENTAL, INC.

Cc: Stephen Forster / Stadler Rail



Appendix G
Updated BACT Analysis Addendum
Stadler Industries – Salt Lake City, Utah

Emissions from Stadler Industries include Hazardous Air Pollutants (HAPs), and criteria pollutants: particulates (PM₁₀ & PM_{2.5}), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO₂), and nitrogen oxides (NO_x). Table G-1 provides a summary of the emissions, their source and the existing control methods for the pollutants.

Table G-1: Emission Source and Control Method Summary

Sources	Location	Emission Type	Control Methods
Painting and Coating	New Paint Booths Main Shop	Particulates	Particulate Filters in Paint Booths
		VOCs and HAPs	None
Natural Gas Usage	Natural gas for heating;	Criteria Pollutants	None
Diesel Usage	Diesel for generator	Criteria Pollutants	Diesel Motor is EPA NPS Tier 3

CURRENT EXISTING PARTICULATE CONTROL TECHNOLOGIES

The site is located in Salt Lake County, Utah, and is within a non-attainment and maintenance area.

Paint Booths

Stadler is in the process of installing a new paint booth in the Main Shop building. Specifications for the paint booth are contained in **Appendix H**. Particulate filters for the paint booth will be located along the east wall of the booth and will remove 95% of paint particulate overspray. Specifications for this paint booth are also contained in **Appendix H**.

Diesel Backup Generator

The backup diesel generator is EPA Tier 3 emissions certified by the manufacturer. A product emissions sheet is attached for the engine family used in the diesel standby generator. Given the small size of the device, the intended use for backup power in case of emergency, and the intended hours of operation <100 hrs/year, other control measures for criteria pollutants would be infeasible in accordance with Utah R307-401.

Selective Catalyst Reduction (SCR) and Fuel injection timing retardation (FITR)

SCR is not considered a cost-effective control device for emissions of NO_x from the diesel engine on this project because these engines would be tested only once per week and then used only during emergencies. In all cases, the engine would operate less than 100 hours per year. Additionally, an SCR does not operate properly until optimal exhaust temperatures are achieved. Since the generator would typically be operated for only <1 hour per operating event, a portion of the emissions would be uncontrolled until the optimal



operating temperature is reached. Therefore, SCR is not a technically feasible control technology, and is not considered further in this analysis.

Fuel injection timing retardation (FITR) delays the start of fuel injection to reduce the engine's maximum combustion pressure and, therefore, lower the combustion temperature. However, combustion efficiency of a diesel engine decreases with an increase in timing retardation, thereby reducing the maximum efficiency of the generator when it is needed in emergencies. Additionally, this method increases the emissions of other pollutants such as CO, VOCs, and particulate matter. Therefore, FITR is not a technically feasible control technology, and is not considered further in this analysis



Exhaust emission data sheet

150DSGAC

60 Hz Diesel generator set

EPA emission: Tier 3

Engine information:

Model:	Cummins Inc. QSB7-G5 NR3	Bore:	4.21 in. (107 mm)
Type:	4 cycle, in-line, 6 cylinder diesel	Stroke:	4.88 in. (124 mm)
Aspiration:	Turbocharged and CAC	Displacement:	408 cu. in. (6.7 liters)
Compression ratio:	17.2:1		
Emission control device:	Turbocharged and CAC		

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>	<u>Full</u>
<u>Performance data</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Prime</u>
BHP @ 1800 RPM (60 Hz)	69	122	176	232	209
Fuel consumption (gal/Hr)	4.0	6.8	9.3	11.5	10.6
Exhaust gas flow (CFM)	558	874	1129	1240	1179
Exhaust gas temperature (°F)	637	748	818	867	845

Exhaust emission data

HC (Total unburned hydrocarbons)	0.46	0.21	0.10	0.04	0.05
NOx (Oxides of nitrogen as NO2)	2.02	1.89	2.11	2.83	2.54
CO (Carbon monoxide)	2.30	1.35	0.73	0.38	0.51
PM (Particular Matter)	0.17	0.13	0.09	0.05	0.07
SO2 (g/Hp-hr)	0.17	0.17	0.16	0.15	0.15
Smoke (Bosch)	0.61	0.70	0.65	0.52	0.64

All values are Grams per HP-Hour

Test conditions

Data is representative of steady-state engine speed (± 25 RPM) at designated genset loads. Pressures, temperatures, and emission rates were stabilized.

Fuel specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.
Fuel temperature	99 \pm 9 °F (at fuel pump inlet)
Intake air temperature:	77 \pm 9 °F
Barometric pressure:	29.6 \pm 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits or with improper maintenance, may result in elevated emission levels.



April 22, 2021

Dylan Frederick
Utah Division of Air Quality
195 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

SUBJECT: TRANSMITTAL OF BACT ADDENDUM REVISION 2

RE: Stadler Rail BACT Analysis for Diesel Generator
5880 W 150 S
Salt Lake City, Utah 84104

Dear Mr. Frederick:

On behalf of our clients, Stadler Rail, RMEC Environmental, Inc. is providing the Utah Division of Air Quality (UDAQ) with the enclosed Best Available Control Technology addendum supporting documentation for the above-referenced facility located in Salt Lake City, Utah.

You will find the following application materials transmitted herewithin:

- Appendix G: BACT Analysis

If you have any questions, concerns, or need any additional information, please feel free to contact me at the RMEC offices at (801) 467-3661, or by email: dnye@rmec.net.

Sincerely,

Daniel E. Nye, MSPH, CIH
Senior Scientist
RMEC ENVIRONMENTAL, INC.

Cc: Stephen Forster / Stadler Rail



Appendix G
Updated BACT Analysis Addendum Rev.2
Stadler Industries – Salt Lake City, Utah

Emissions from Stadler Industries include Hazardous Air Pollutants (HAPs), and criteria pollutants: particulates (PM₁₀ & PM_{2.5}), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO₂), and nitrogen oxides (NO_x). Table G-1 provides a summary of the emissions, their source and the existing control methods for the pollutants.

Table G-1: Emission Source and Control Method Summary

Sources	Location	Emission Type	Control Methods
Painting and Coating	New Paint Booths Main Shop	Particulates	Particulate Filters in Paint Booths
		VOCs and HAPs	None
Natural Gas Usage	Natural gas for heating;	Criteria Pollutants	None
Diesel Usage	Diesel for generator	Criteria Pollutants	Diesel Motor Meets NSPS 40 CFR Part 60 Subpart III.

CURRENT EXISTING PARTICULATE CONTROL TECHNOLOGIES

The site is located in Salt Lake County, Utah, and is within a non-attainment and maintenance area.

Paint Booths

Stadler is in the process of installing a new paint booth in the Main Shop building. Specifications for the paint booth are contained in **Appendix H**. Particulate filters for the paint booth will be located along the east wall of the booth and will remove 83.6% of paint particulate overspray. Specifications for this paint booth are also contained in **Appendix H**.

Diesel Backup Generator

The generator meets NSPS III requirements for Stationary Compression Ignition Internal Combustion Engines. A product emissions sheet is attached for the engine family used in the diesel standby generator. Given the small size of the device, the intended use for backup power in case of emergency, and the intended hours of operation <100 hrs/year, other control measures for criteria pollutants would be infeasible in accordance with Utah R307-401.

Selective Catalyst Reduction (SCR) and Fuel injection timing retardation (FITR)

SCR is not considered a cost-effective control device for emissions of NO_x from the diesel engine on this project because these engines would be tested only once per week and then used only during emergencies. In all cases, the engine would operate less than 100 hours per year. Additionally, an SCR does not operate properly until optimal exhaust temperatures are achieved. Since the generator would typically be operated



for only <1 hour per operating event, a portion of the emissions would be uncontrolled until the optimal operating temperature is reached. Therefore, SCR is not a technically feasible control technology, and is not considered further in this analysis.

Fuel injection timing retardation (FITR) delays the start of fuel injection to reduce the engine's maximum combustion pressure and, therefore, lower the combustion temperature. However, combustion efficiency of a diesel engine decreases with an increase in timing retardation, thereby reducing the maximum efficiency of the generator when it is needed in emergencies. Additionally, this method increases the emissions of other pollutants such as CO, VOCs, and particulate matter. Therefore, FITR is not a technically feasible control technology, and is not considered further in this analysis



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN160420001

June 11, 2021

Stephen Forster
Stadler Rail
5880 West 150 South
Salt Lake City, UT 84104
Stephen.Forster@stadlerrail.com

Dear Stephen Forster,

Re: Engineer Review:
New Railcar Manufacturing Shop
Project Number: N160420001

The DAQ requests a company representative review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. Stadler Rail should complete this review within **10 business days** of receipt.

Stadler Rail should contact **Dylan Frederick** at (385) 306-6529 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email dfrederick@utah.gov the signed cover letter to Dylan Frederick. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an AO for signature by the DAQ Director.

If Stadler Rail does not respond to this letter within **10 business days**, the project will move forward without source concurrence. If Stadler Rail has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____

(Signature & Date)

UTAH DIVISION OF AIR QUALITY ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N160420001
Owner Name	Stadler Rail
Mailing Address	5880 West 150 South Salt Lake City, UT, 84104
Source Name	Stadler Rail- Commuter Railcar Manufacturing Shop
Source Location	5880 West 150 South Salt Lake City, UT 84104
UTM Projection	412,999 m Easting, 4,513,484 m Northing
UTM Datum	NAD83
UTM Zone	UTM Zone 12
SIC Code	3743 (Railroad Equipment)
Source Contact	Stephen Forster
Phone Number	(801) 970-1221
Email	Stephen.Forster@stadlerrail.com
Project Engineer	Dylan Frederick, Engineer
Phone Number	(385) 306-6529
Email	dfrederick@utah.gov
Notice of Intent (NOI) Submitted	December 17, 2020
Date of Accepted Application	January 25, 2021

SOURCE DESCRIPTION

General Description

Stadler Rail (Stadler) operates a commuter railcar manufacturing shop in Salt Lake City, Utah. The shop generates emissions primarily through its paint booth operations that paint and coat premanufactured rail cars. The shop operates a paint booth with two bays that use VOC and HAP generating materials.

NSR Classification:

New Minor Source

Source Classification

Located in Salt Lake City CO Maintenance Area, Northern Wasatch Front O3 NAA, Salt Lake City UT PM_{2.5} NAA, Salt Lake County SO₂ NAA

Salt Lake County

Airs Source Size: B

Applicable Federal Standards

NSPS (Part 60), A: General Provisions

NSPS (Part 60), III: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

MACT (Part 63), A: General Provisions

MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Project Proposal

New Railcar Manufacturing Shop

Project Description

Stadler Rail previously operated under a small source exemption. Due to potential increases in operation, the source is now considered a minor source. The source will operate the following equipment:

1. One (1) Paint Booth
2. One (1) 320 hp Emergency Engine
3. Various natural gas heaters under 5 MMBtu/hr.

EMISSION IMPACT ANALYSIS

All criteria pollutants are below the modeling thresholds contained in R307-410-4. All HAP emissions are below their respective emission threshold values in R307-410-5. Therefore, no modeling is required for this source. [Last updated May 24, 2021]

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
CO ₂ Equivalent		1234.00
Carbon Monoxide		0.97
Nitrogen Oxides		1.55
Particulate Matter - PM ₁₀		0.27
Particulate Matter - PM _{2.5}		0.27
Sulfur Dioxide		0.01
Volatile Organic Compounds		5.21

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Ethyl Benzene (CAS #100414)		1289
Generic HAPs (CAS #GHAPS)		1245
Hexamethylene-1,6-Diisocyanate (CAS #822060)		6
Xylenes (Isomers And Mixture) (CAS #1330207)		1279
	Change (TPY)	Total (TPY)
Total HAPs		1.91

Note: Change in emissions indicates the difference between previous AO and proposed modification.

Review of BACT for New/Modified Emission Units

1. BACT review regarding Generator

NO_x, CO, VOC, PM₁₀, PM_{2.5}

The emergency generator engine generates emissions through combustion of diesel fuel. The emergency engine will operate for a maximum of 100 hours per year for testing and maintenance purposes. Emergency use is unlimited. Due to the 100-hour limit, expected emissions from the engine are relatively low, with 0.5 tons per year of NO_x and 0.11 tons per year of CO estimated.

There are several add on technologies that the source can use to control emissions from the engine, such as selective catalytic reduction (SCR) which can reduce NO_x emissions by up to 90%. SCR is considered infeasible due to the emergency nature of the engine. Testing would only occur in intervals of 30 minutes to an hour, which does not allow enough time for the catalyst to reach the effective temperature range of 480 - 800 Fahrenheit. SCR is therefore technically infeasible for the emergency engine.

The source could also alter operation of engine using fuel injection timing retardation (FITR) which lowers the combustion temperature, reducing NO_x formation. FITR also reduces combustion efficiency in the engine, and increases the amount of other pollutants released by the engine, such as CO and VOCs. These make FITR technically infeasible for the engine.

The engine could also certify to EPA tier standards, which set emissions standards for NO_x, CO, and PM that the engine is certified to meet. The proposed engine has been selected to be a tier 3 engine by the source, which results in a reduction from the baseline emissions estimated for the engine. The source could purchase an engine certified to tier 4 emission standards, which are more stringent. However, this is economically infeasible, as the emissions from the engine are already low, which means the increased cost would not be justified by the reduction in emissions. Compared to estimations from AP-42 chapters 3.3 and 3.4, which estimate uncontrolled emissions from diesel engines, tier 3 standards already result in an 80% reduction in NO_x, a 30% reduction in CO, and a 75% reduction in PM₁₀ and PM_{2.5}. Therefore, tier 3 emission standards are considered BACT and are accepted as feasible for the emergency engine.

Low sulfur emitting fuels are feasible to implement. For diesel engines this is ultra-low sulfur diesel (ULSD), which meets a sulfur content of 15 ppm or less. This represents BACT for the engine.

BACT for the emergency diesel engine is installation of an engine that is certified to meet a NO_x emission rate of 3 g/hp-hr, use of ULSD fuel, and a 20% opacity limit. [Last updated May 27, 2021]

2. BACT review regarding Painting Operations

PM₁₀, PM_{2.5}, VOCs and HAPs

The facility will install and operate a paint booth where all future painting and coating operations will take place. These operations generate both particulate matter and VOCs and HAPs.

For control of particulate matter, the only control technology available for the paint booth is a particulate arrestor filter. Stadler proposed arrestor filters to capture the excess solids released by the painting and coating materials. Stadler provided testing data for the proposed filters showing an 83.6% arrestance efficiency. This is economically and technically feasible to implement.

For control of VOCs and HAPs, there are several add on controls that can be considered, as well as management practices to reduce emissions. Most add on controls require a VOC capture device, as well as a high enough concentration of VOCs in the exhaust stream in order to be technically and economically feasible. Carbon adsorption, thermal oxidation, and other add on controls that convert or destroy captured VOCs are economically infeasible due to the high costs of installation, and the relatively low amount of VOC emissions coming from the painting and coating operations. The source can reduce VOCs through low-VOC content materials that meet the requirements of R307-350, Miscellaneous Metal Parts and Products Coatings. Additionally, best management practices such as closing containers with VOC emitting materials when not in use, reporting and cleaning spills when they occur, and reducing waste whenever possible are also feasible to implement.

BACT for control of particulate matter, VOCs and HAPs from the paint booth will be installation of particulate arrestor filters, compliance with R307-350, Miscellaneous Metal Parts and Products Coatings, and an opacity limit of 10%.

[Last updated April 12, 2021]

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as “New” in the Outline Label):**

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]

I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of construction or modification to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. (New or Modified conditions are indicated as “New” in the Outline Label):

II.A THE APPROVED EQUIPMENT

II.A.1 NEW	Railcar Manufacturing Facility
II.A.2 NEW	One (1) Paint Booth Railcar Painting and Coating
II.A.3 NEW	One (1) Emergency Engine Rating: 320 hp Fuel: Diesel Federal Applicability: NSPS IIII and MACT ZZZZ
II.A.4 NEW	Various Natural Gas Boilers <5 MMBtu/hr *Included for informational purposes only

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. (New or Modified conditions are indicated as “New” in the Outline Label):

II.B**REQUIREMENTS AND LIMITATIONS**

II.B.1.a NEW	The owner/operator shall not allow visible emissions to exceed the following limits: A. The emergency engine - 20% opacity B. All other points - 10% opacity. [R307-305-3, R307-401-8]
II.B.1.a.1 NEW	Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9. [R307-305-3]
II.B.2 NEW	Painting and Coating Requirements
II.B.2.a NEW	The owner/operator shall not emit more than the following from evaporative sources (painting, printing, coating, and/or cleaning) on site: 5.11 tons per rolling 12-month period of VOCs 0.64 tons per rolling 12-month period of Ethyl Benzene 0.64 tons per rolling 12-month period of Xylenes 1.91 tons per rolling 12-month period of all HAPs combined. [R307-401-8]
II.B.2.a.1 NEW	The owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. The owner/operator shall use a mass-balance method to calculate emissions from evaporative sources. The owner/operator may use the following equations with applicable units to comply with the mass-balance method: VOCs = [% VOCs by Weight/100] x [Density] x [Volume Consumed] HAP = [% HAP by Weight/100] x [Density] x [Volume Consumed] [R307-401-8]
II.B.2.a.2 NEW	The owner/operator shall use a mass-balance method to quantify any amount of VOCs and HAPs reclaimed. The owner/operator shall subtract the amount of VOCs and HAPs reclaimed from the quantities calculated above to provide the monthly total emissions of VOCs and HAPs. [R307-401-8]

II.B.2.a.3 NEW	<p>The owner/operator shall keep records each month of the following:</p> <ul style="list-style-type: none"> A. The name (as per SDS) of the VOC- and HAP-emitting material B. The maximum percent by weight of VOCs and each HAP in each material used C. The density of each material used D. The volume of each VOC- and HAP-emitting material used E. The amount of VOCs and the amount of each HAP emitted from each material F. The amount of VOCs and the amount of each HAP reclaimed and/or controlled from each material G. The total amount of VOCs, the total amount of each HAP, and the total amount of all HAPs combined emitted from all materials (in tons). [R307-401-8]
II.B.2.b NEW	<p>The owner/operator shall install the paint spray booth with a set of paint arrestor particulate filters, or equivalent, to control particulate emissions. Air exiting the booth shall pass through this control system before being vented to the atmosphere (outside building/operation). [R307-401-8]</p>
II.B.2.c NEW	<p>The owner/operator shall comply with all applicable requirements of R307-350, Miscellaneous Metal Parts and Products Coatings. [R307-350]</p>
II.B.3 NEW	<p>Emergency Engine Requirements</p>
II.B.3.a NEW	<p>The owner/operator shall install an emergency engine that is certified to meet a NO_x emission rate of 3 g/hp-hr or less. [R307-401-8]</p>
II.B.3.a.1 NEW	<p>To demonstrate compliance with the emission rate, the owner/operator shall keep a record of the manufacturer's certification of the emission rate. The record shall be kept for the life of the equipment. [R307-401-8]</p>
II.B.3.b NEW	<p>The owner/operator shall not operate the emergency engine on site for more than 100 hours per rolling 12-month period during non-emergency situations. There is no time limit on the use of the engine during emergencies. [40 CFR 60 Subpart ZZZZ, R307-401-8]</p>
II.B.3.b.1 NEW	<p>To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the 20th day of each month using data from the previous 12 months. Records documenting the operation of the emergency engine shall be kept in a log and shall include the following:</p> <ul style="list-style-type: none"> a. The date the emergency engine was used b. The duration of operation in hours c. The reason for the emergency engine usage. [40 CFR 60 Subpart ZZZZ, R307-401-8]

II.B.3.b.2 NEW	To determine the duration of operation, the owner/operator shall install a non-resettable hour meter for the emergency engine. [40 CFR 60 Subpart ZZZZ, R307-401-8]
II.B.3.c NEW	The owner/operator shall only use diesel fuel (e.g. fuel oil #1, #2, or diesel fuel oil additives) as fuel in the emergency engine. [R307-401-8]
II.B.3.c.1 NEW	The owner/operator shall only combust diesel fuel that meets the definition of ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 ppm or less. [R307-401-8]
II.B.3.c.2 NEW	To demonstrate compliance with the ULSD fuel requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. The diesel fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements. [R307-401-8]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents:

Is Derived From	NOI dated December 17, 2020
Incorporates	Additional Information dated January 21, 2021
Incorporates	Additional Information dated March 17, 2021
Incorporates	Additional Information dated April 27, 2021

REVIEWER COMMENTS

1. **Comment regarding Emission Estimates:**

Emissions were estimated with the following methods and assumptions:

Painting and Coating - Stadler uses many different materials with VOC and HAP content. To determine emissions, an estimate was made for how much of each material is used annually, and the weight of each material was multiplied by their percentage of VOC and HAP content. These percentages were taken from the relevant SDS sheet of the material being used. All VOC and HAPs are assumed to evaporate to the atmosphere. HAPs were speciated out in each calculation. The total VOCs and HAPs calculated were then added together, before being multiplied by a safety factor of 10%, in order to allow room for increased usage. In the NOI, emissions of 'n-butyl acetate' were calculated and included in the emission total for all HAPs. This compound is not on the EPA list of HAPs, and after discussion with the source, the emissions of n-butyl acetate were removed from the HAP total. The new total of HAPs excluding the 1,036.89 lbs of n-butyl acetate is 1.91 tons per year.

Natural Gas Combustion - The shop will generally operate Monday through Friday, from 7-3:30 PM, excluding holidays. However, emissions were estimated assuming 8760 hours of operation. The shop operates two 1 MMBtu/hr heaters that are used in the paint booths. Emissions were estimated using emission factors from AP-42 Tables 1.4-1, 1.4-2, and 1.4-3.

Diesel Combustion - The shop will also operate a 320 hp emergency generator. The generator is limited to 100 hours of operation for maintenance and testing. Emergency use hours are not limited and are not included in the estimates for emissions. Emissions were estimated using emission factors from AP-42 Table 3.3-1 and 3.4-1. [Last updated February 16, 2021]

2. **Comment regarding Regulatory Review:**

40 CFR 60 (NSPS) Subpart IIII applies to "stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005." The 320 hp emergency generator meets this definition, therefore this subpart is applicable.

40 CFR 63 (MACT) Subpart ZZZZ applies to owners and operators of "...stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand." The engine is not operating at a test cell/stand, therefore, this subpart is applicable.

40 CFR 63 (MACT) Subpart HHHHHH applies to the following activities at area sources of HAPs:

1. Paint Stripping operations using MeCl for the removal of dried paint,
2. Spray application of coatings, as defined in §63.11180, to motor vehicles and mobile equipment, and,

3. Spray application of coatings that contain the target HAPs chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd).

The facility will operate painting operations that use spray application methods. However, the coatings are not being applied to motor vehicles or mobile equipment as defined in this subpart, nor do the spray coating use any of the target HAPs listed above. Therefore, this subpart does not apply to the facility.

[Last updated June 11, 2021]

3. **Comment regarding Title V:**

Title V of the 1990 Clean Air Act (Title V) applies to the following:

1. Any major source
2. Any source subject to a standard, limitation, or other requirement under Section 111 of the Act, Standards of Performance for New Stationary Sources;
3. Any source subject to a standard or other requirement under Section 112 of the Act, Hazardous Air Pollutants.
4. Any Title IV affected source.

This facility is not a major source and is not a Title IV source. The facility is not subject to 40 CFR 61 (NESHAP) regulations. The facility is subject to 40 CFR 60 (NSPS), 40 CFR 63 (MACT) regulations. 40 CFR 70 (Title V permit) does not apply because NSPS IIII and MACT ZZZZ exempt sources from the obligation to obtain a permit under a Title V permit, if the source is not otherwise required by law to obtain a permit. There are no other reasons why this source would be required to obtain a Title V permit; therefore, Title V does not apply to this facility as per R307-415-4(2)(c).

[Last updated February 18, 2021]

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM ₁₀	Particulate matter less than 10 microns in size
PM _{2.5}	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO ₂	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds



March 17, 2021

Dylan Frederick
Utah Division of Air Quality
195 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

SUBJECT: TRANSMITTAL OF PAINT BOOTH EMISSION UPDATE

RE: Stadler Rail Paintbooth Emissions
5880 W 150 S
Salt Lake City, Utah 84104

Dear Mr. Frederick:

On behalf of our clients, Stadler Rail, RMEC Environmental, Inc. is providing the Utah Division of Air Quality (UDAQ) with the enclosed Paint Booth Emissions addendum supporting documentation for the above-referenced facility located in Salt Lake City, Utah.

You will find the following application materials transmitted herewithin:

- Updated Table C2 : Painting Emission Estimates

If you have any questions, concerns, or need any additional information, please feel free to contact me at the RMEC offices at (801) 467-3661, or by email: dnye@rmec.net.

Sincerely,

Daniel E. Nye, MSPH, CIH
Senior Scientist
RMEC ENVIRONMENTAL, INC.

Cc: Stephen Forster / Stadler Rail



**Updated Paint Booth Emissions Addendum
Stadler Industries – Salt Lake City, Utah**

Table C-2, below, provides an emission estimate for this source based on the projected usage:

Updated Table C-2: Painting Emission Estimates (March 2021)

Air Contaminant	Emission Factor (lb./gallon)	Estimated Annual Paint Usage (pounds)	Estimated Annual Emissions (lbs.)	Estimated Annual Emissions (tons)
Volatile Organic Compounds (VOCs)	Varies with Paint	54,814	9,286	4.64
HAPs (combined)	Varies with Paint		4,446	2.23
PM ₁₀	-		537*	0.27*
PM _{2.5}	-		537*	0.27*

* PM values assume 30% solids in the paints, average specific gravity of 1.1, 20% overspray, and 83.6% capture efficiency for the particulate filters in the paint booth. The PM uncontrolled value is 539 lbs, or 0.27 tons.